



SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 01/27/2015

Version 1.2

SECTION 1. Identification

Product identifier

Product number	119792
Product name	Nickel standard solution traceable to SRM from NIST $\text{Ni}(\text{NO}_3)_2$ in HNO_3 0.5 mol/l 1000 mg/l Ni Certipur®

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Corrosive to Metals, Category 1, H290
Skin irritation, Category 2, H315
Eye irritation, Category 2A, H319
Respiratory sensitization, Category 1, H334
Skin sensitization, Category 1, H317
Carcinogenicity, Category 1A, Inhalation, H350i
Reproductive toxicity, Category 1B, H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

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Hazard Statements

H350i May cause cancer by inhalation.
H360 May damage fertility or the unborn child.
H290 May be corrosive to metals.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P234 Keep only in original container.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P321 Specific treatment (see supplemental first aid instructions on this label).
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inliner.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature	Aqueous solution
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Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

nitric acid ($\geq 1\%$ - $< 5\%$)

7697-37-2

Exact percentages are being withheld as a trade secret.

nickel(II) nitrate ($\geq 0.1\%$ - $< 1\%$)

13138-45-9

Exact percentages are being withheld as a trade secret.

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SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Consult a physician.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Allergic reactions

The following applies to nickel compounds in general: astringent effect on mucous membranes.

Sensitization with allergic manifestations in predisposed persons. Occasional formation of nickel dermatitis.

The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H⁺, Art. No. 101595).

Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Conditions for safe storage, including any incompatibilities

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

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SECTION 8. Exposure controls/personal protection**Exposure limit(s)***Ingredients*

Basis	Value	Threshold limits	Remarks
<i>nitric acid 7697-37-2</i>			
ACGIH	Time Weighted Average (TWA):	2 ppm	
	Short Term Exposure Limit (STEL):	4 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	2 ppm 5 mg/m ³	
	Short Term Exposure Limit (STEL):	4 ppm 10 mg/m ³	
OSHA_TRANS	PEL:	2 ppm 5 mg/m ³	
Z1A	Time Weighted Average (TWA):	2 ppm 5 mg/m ³	
	Short Term Exposure Limit (STEL):	4 ppm 10 mg/m ³	
<i>nickel(II) nitrate 13138-45-9</i>			
ACGIH	Time Weighted Average (TWA):	0.1 mg/m ³	Form of exposure: Inhalable fraction. Expressed as: as Ni
NIOSH/GUIDE	Recommended exposure limit (REL):	0.015 mg/m ³	Expressed as: as Ni
OSHA_TRANS	PEL:	1 mg/m ³	Expressed as: as Ni
	PEL:	1 mg/m ³	Expressed as: as Ni
Z1A	Time Weighted Average (TWA):	0.1 mg/m ³	Expressed as: as Ni
	Time Weighted Average (TWA):	1 mg/m ³	Expressed as: as Ni

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

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Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	green
Odor	odorless
Odor Threshold	No information available.
pH	ca. 0.5 at 68 °F (20 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	ca. 1.014 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble

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Partition coefficient: n-octanol/water	Not applicable
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	No information available.
Corrosion	May be corrosive to metals.

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

the constituents may react with:

Metals, strong alkalis

Conditions to avoid

no information available

Incompatible materials

Metals, metal alloys

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact

Target Organs

Eyes

Skin

Respiratory system

teeth

Acute oral toxicity

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

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Acute inhalation toxicity

Symptoms: Possible damages: mucosal irritations

Skin irritation

Mixture causes skin irritation.

Eye irritation

Mixture causes serious eye irritation.

Sensitization

Mixture may cause an allergic skin reaction.

CMR effects

Carcinogenicity:

Possible human carcinogen by inhalation.

Teratogenicity:

May harm the unborn child.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

Mixture may cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 1: Carcinogenic to humans	
	nickel(II) nitrate	13138-45-9
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.	
NTP	Known carcinogen.	
	nickel(II) nitrate	13138-45-9
ACGIH	A1: Confirmed human carcinogen	
	nickel(II) nitrate	13138-45-9

Further information

Quantitative data on the toxicity of this product are not available.

Further toxicological data:

The following applies to nickel compounds in general: astringent effect on mucous membranes.

Sensitization with allergic manifestations in predisposed persons. Occasional formation of nickel dermatitis.

The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

Further data:

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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1000 mg/l Ni Certipur®

Ingredients

nitric acid

Skin irritation

Rabbit

Result: Causes severe burns.

(IUCLID)

Eye irritation

Rabbit

Result: Causes burns.

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

nickel(II) nitrate

Acute oral toxicity

LD50 Rat: 1,620 mg/kg (for the hexahydrate) (RTECS)

Acute inhalation toxicity

Acute toxicity estimate: 1.6 mg/l; dust/mist

Expert judgment

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Result: negative

(Lit.)

SECTION 12. Ecological information

Ecotoxicity

No information available.

Persistence and degradability

No information available.

Bioaccumulative potential

Partition coefficient: n-octanol/water

Not applicable

Mobility in soil

No information available.

Additional ecological information

Discharge into the environment must be avoided.

Ingredients

nitric acid

Toxicity to fish

LC50 *Gambusia affinis* (Mosquito fish): 72 mg/l; 96 h (IUCLID)

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Biodegradability

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

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Henry constant

2482 Pa·m³/mol

Method: (calculated)

(Lit.) Distribution preferentially in air.

nickel(II) nitrate

Toxicity to fish

LC50 *Cyprinus carpio* (Carp): 10.6 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 0.9 mg/l; 48 h (ECOTOX Database)

M-Factor

1

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID NOT MORE THAN 5%)
Class	8
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID SOLUTION)
Class	8
Packing group	III
Environmentally hazardous	--

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Special precautions for user	no
Sea transport (IMDG)	
UN number	UN 3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID NOT MORE THAN 5%)
Class	8
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-B

SECTION 15. Regulatory information

United States of America

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

nitric acid	7697-37-2	2.4281 %
nickel(II) nitrate	13138-45-9	0.3074 %

SARA 302

The following components are subject to reporting levels established by SARA Title III, Section 302:

Ingredients

nitric acid	7697-37-2
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Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

nitric acid
nickel(II) nitrate

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

nitric acid
nickel(II) nitrate

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

nitric acid

Pennsylvania Right To Know

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Ingredients

nitric acid

New Jersey Right To Know

Ingredients

nitric acid

nickel(II) nitrate

California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

Ingredients

nickel(II) nitrate

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL.
KOREA:	Not in compliance with the inventory

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H350i	May cause cancer by inhalation.
H360	May damage fertility or the unborn child.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 01/27/2015

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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