Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

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1 Identification

· **Product Identifier**

· **Trade name: NuGenTec EP 316 (electro-polishing solution)**
· **Product Number:** ng-EP316
· **Relevant identified uses of the substance or mixture and uses advised against:**
Use as direced by manufacturer.
· **Product Description** Electropolishing solution.
· **Application of the substance / the mixture:** Industry-specific application.

· **Details of the Supplier of the Safety Data Sheet:**
· **Manufacturer/Supplier:**
NuGeneration Technologies, LLC (dba NuGenTec)
1155 Park Avenue, Emeryville, CA 94608
salesteam@nugentec.com www.nugentec.com
1-888-996-8436 or 1-707-820-4080 for product information
· **Emergency telephone number:**
PERS Emergency Response: Domestic and Canada - 1-800-633-8253, International 1-801-629-0667

2 Hazard(s) Identification

· **Classification of the substance or mixture:**

GHS08 Health hazard

Resp. Sens. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Carc. 1A	H350	May cause cancer.
Repr. 1	H360	May damage fertility or the unborn child.
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure.

GHS05 Corrosion

Skin Corr. 1A	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.

GHS07

Skin Sens. 1	H317	May cause an allergic skin reaction.

· **Label elements:**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Hazard pictograms:**

GHS05 GHS08

· **Signal word:** Danger

· **Hazard-determining components of labeling:**
Orthophosphoric Acid
Nickel(II) sulfate hexahydrate
sulfuric acid

· **Hazard statements:**
H314 Causes severe skin burns and eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements:**

P260	Do not breathe dusts or mists.
P284	[In case of inadequate ventilation] wear respiratory protection.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves.
P280	Wear eye protection / face protection.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363	Wash contaminated clothing before reuse.
P304+P341	If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P314	Get medical advice/attention if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

(Contd. on page 3)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *4
Fire = 0
Reactivity = 0

· **Hazard(s) not otherwise classified (HNOC):** None known

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3 Composition/Information on Ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of substances listed below with non-hazardous additions.

· **Dangerous Components:**

7664-32-2	Orthophosphoric Acid Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302	40-60%
7664-93-9	sulfuric acid Skin Corr. 1A, H314	40-60%
10101-97-0	Nickel(II) sulfate hexahydrate Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350; Repr. 1B, H360; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Skin Sens. 1, H317	<2.5%

4 First-Aid Measures

· **Description of first aid measures:**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may occur after exposure to dust, fumes or particulates; seek medical attention if feeling unwell.
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation occurs, consult a doctor.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed:**
No further relevant information available.

(Contd. on page 4)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Indication of any immediate medical attention and special treatment needed:**
No further relevant information available.

5 Fire-Fighting Measures

· **Extinguishing media:**
· **Suitable extinguishing agents:**
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **Special hazards arising from the substance or mixture:** No further relevant information available.
· **Advice for firefighters:**
· **Protective equipment:**
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

· **Personal precautions, protective equipment and emergency procedures:**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/surface or ground water.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Dispose of the collected material according to regulations.
· **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and Storage

· **Handling**
· **Precautions for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· **Information about protection against explosions and fires:**
Keep protective respiratory device available.

· **Conditions for safe storage, including any incompatibilities:**
· **Storage**
· **Requirements to be met by storerooms and receptacles:** Store in the original container.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.

(Contd. on page 5)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Specific end use(s):** No further relevant information available.

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8 Exposure Controls/Personal Protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters:**
All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

· **Components with occupational exposure limits:**	
7664-32-2 Orthophosphoric Acid	
TWA	Short-term value: 3 mg/m³ Long-term value: 1 mg/m³
7664-93-9 sulfuric acid	
PEL	Long-term value: 1 mg/m³
REL	Long-term value: 1 mg/m³
TLV	Long-term value: 0.2* mg/m³ *as thoracic fraction
10101-97-0 Nickel(II) sulfate hexahydrate	
PEL	Long-term value: 1 mg/m³ as Ni
REL	Long-term value: 0.015 mg/m³ as Ni; See Pocket Guide App. A
TLV	Long-term value: 0.1 mg/m³ as Ni; inhalable fraction

· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls:**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

(Contd. on page 6)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Select glove material based on penetration times, rates of diffusion and degradation.

· **Material of gloves:**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material:**
The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**

Tightly sealed goggles

· **Body protection:**

Protective work clothing

9 Physical and Chemical Properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Liquid
Color:	Dark green
· **Odor:**	Mild
· **Odor threshold:**	Not determined.
· **pH-value @ 20 °C (68 °F):**	< 1
· **Change in condition**	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	None
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	425 °C (797 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Product does not present an explosion hazard.

(Contd. on page 7)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Explosion limits:**
Lower: 0.0 Vol %
Upper: 0.0 Vol %

· **Vapor pressure @ 20 °C (68 °F):** 23 hPa (17 mm Hg)

· **Density @ 20 °C (68 °F):** 1.725 g/cm³ (14.395 lbs/gal)
· **Relative density:** Not determined.
· **Vapor density:** Not determined.
· **Evaporation rate:** Not determined.

· **Solubility in / Miscibility with:**
Water: Fully miscible.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**
Dynamic @ 20 °C (68 °F): 1 mPas
Kinematic @ 40 °C (104 °F): 1 mm²/s

· **Solvent content:**
Organic solvents: 0.0 %
Water: 11.3 %

Solids content: 0.2 %
· **Other information:** No further relevant information available.

10 Stability and Reactivity

· **Reactivity:** No further relevant information available.
· **Chemical stability:** Stable under normal conditions.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions:** No dangerous reactions known.
· **Conditions to avoid:** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological Information

· **Information on toxicological effects:**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
7664-32-2 Orthophosphoric Acid		
Oral	LD50	1530 mg/kg (rat)
Dermal	LD50	2740 mg/kg (rabbit) (Standard Draize) Skin Irritation - Rabbit, 595 mg/24H: Severe Eye Irritation - Rabbit, 119 mg: Severe

(Contd. on page 8)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Primary irritant effect:**
· **On the skin:**
Caustic effect on skin and mucous membranes.
Strong caustic effect on skin and mucous membranes.
May cause an allergic skin reaction.
· **On the eye:**
Strong caustic effect.
Corrosive effect.
Causes serious eye irritation.
· **Sensitization:** Sensitization possible through skin contact.
· **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
Carcinogenic if inhaled.
Swallowing will lead to a corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories:**
· **IARC (International Agency for Research on Cancer):**
Group 1 - Carcinogenic to humans
Group 2A - Probably carcinogenic to humans
Group 2B - Possibly carcinogenic to humans
Group 3 - Not classifiable as to its carcinogenicity to humans
Group 4 - Probably not carcinogenic to humans

7664-93-9	sulfuric acid	1
10101-97-0	Nickel(II) sulfate hexahydrate	1

· **NTP (National Toxicology Program):**

7664-93-9	sulfuric acid	K
10101-97-0	Nickel(II) sulfate hexahydrate	K

· **OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

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12 Ecological Information

· **Toxicity:** The hazards for the aquatic environment are unknown.
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability:** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential:** No further relevant information available.
· **Mobility in soil:** No further relevant information available.

(Contd. on page 9)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Additional ecological information:**
· **General notes:**
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
· **Results of PBT and vPvB assessment:**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects:** No further relevant information available.

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13 Disposal Considerations

· **Waste treatment methods:**
· **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Observe all federal, state and local environmental regulations when disposing of this material.

· **Uncleaned packagings**
· **Recommendation:**
Disposal must be made according to official regulations.
Dispose of as unused product.
· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport Information

· **UN-Number:**
· **DOT, ADR, IMDG, IATA** UN3264
· **UN proper shipping name:**
· **DOT** Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid, Phosphoric acid solution)
· **ADR** UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid, Phosphoric acid solution)
· **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, PHOSPHORIC ACID, SOLUTION)
· **Transport hazard class(es):**
· **DOT**

· **Class:** 8 Corrosive substances

(Contd. on page 10)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

· **Label:**	8
· **ADR**	
	
· **Class:**	8 (C1) Corrosive substances
· **Label:**	8
· **IMDG, IATA**	
	
· **Class:**	8 Corrosive substances
· **Label:**	8
· **Packing group:**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user:**	Warning: Corrosive substances
· **Danger code (Kemler):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups:**	Acids
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Quantity limitations:**	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· **ADR**	
· **Excepted quantities (EQ):**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **IMDG**	
· **Limited quantities (LQ):**	1L
· **Excepted quantities (EQ):**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid, Phosphoric acid solution), 8, II

US

(Contd. on page 11)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

15 Regulatory Information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**
· **SARA (Superfund Amendments and Reauthorization):**

· **Section 355 (extremely hazardous substances):**

7664-93-9	sulfuric acid

· **Section 313 (Specific toxic chemical listings):**

7664-93-9	sulfuric acid
10101-97-0	Nickel(II) sulfate hexahydrate
7789-02-8	Chromium(III) nitrate nonahydrate

· **TSCA (Toxic Substances Control Act):**

7664-93-9	sulfuric acid
10101-97-0	Nickel(II) sulfate hexahydrate
7732-18-5	Water, distilled water, deionized water

· **California Proposition 65:**

· **Chemicals known to cause cancer:**

10101-97-0	Nickel(II) sulfate hexahydrate

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients are listed.

· **Carcinogenic categories:**

· **EPA (Environmental Protection Agency):**
None of the ingredients are listed.

· **TLV (Threshold Limit Value established by ACGIH):**

7664-93-9	sulfuric acid	A2
10101-97-0	Nickel(II) sulfate hexahydrate	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health):**

10101-97-0	Nickel(II) sulfate hexahydrate

· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms:**

GHS05 GHS08

· **Signal word:** Danger

(Contd. on page 12)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

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Orthophosphoric Acid
Nickel(II) sulfate hexahydrate
sulfuric acid
· **Hazard statements:**
H314 Causes severe skin burns and eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
· **Precautionary statements:**

P260	Do not breathe dusts or mists.
P284	[In case of inadequate ventilation] wear respiratory protection.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves.
P280	Wear eye protection / face protection.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P363	Wash contaminated clothing before reuse.
P304+P341	If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P314	Get medical advice/attention if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

· **National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

(Contd. on page 13)

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 08/08/2016 Reviewed on 08/08/2016

Trade name: NuGenTec EP 316 (electro-polishing solution)

16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Date of preparation / last revision:** 08/08/2016 / -

· **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 2: Germ cell mutagenicity – Category 2
Carc. 1A: Carcinogenicity – Category 1A
Repr. 1: Reproductive toxicity – Category 1
Repr. 1B: Reproductive toxicity – Category 1B
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· **** Data compared to the previous version altered.***

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