Nickel Plating Solution
Safety Data Sheet

SECTION 1: Identification

1.1. Identification

Product Name: Nickel Plating Solution
Product Code: EP-EC5-200A-01

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

Recommended use and restrictions on use: For laboratory and R&D use only

1.3. Details of the supplier of the safety data sheet

Nano3D Systems LLC
1110 NE Circle Blvd., ATAMI/Bldg. 11
Corvallis, OR 97330

1.4. Emergency telephone number

Emergency number CHEMTREC: 1-800-424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 4 (Oral)	H302
Eye Dam. 1	H318
Resp. Sens. 1	H334
Skin Sens. 1	H317
Muta. 2	H341
Carc. 1B	H350
Repr. 1B	H360
STOT RE 1	H372

Full text of classification categories and H statements : see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS05 GHS07 GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - [In case of inadequate ventilation] wear respiratory protection
P301+P312 - If swallowed: Call a poison center/doctor if you feel unwell
P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep 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
P310 - Immediately call a poison center/doctor

P314 - Get medical advice/attention if you feel unwell
P330 - Rinse mouth
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a poison center/doctor/…
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Nickel(II) bis(sulfamate) tetrahydrate	(CAS No) 124594-15-6	Trade Secret	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350 Repr. 1B, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Boric acid (H3BO3)	(CAS No) 10043-35-3	Trade Secret	Repr. 1B, H360
Nickel(II) bromide hydrate	(CAS No) 207569-11-7	Trade Secret	Acute Tox. 4 (Oral), H302 Skin Sens. 1, H317 Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Saccharin, sodium salt hydrate	(CAS No) 82385-42-0	Trade Secret	Not classified

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

First-aid measures after skin contact : Wash with soap and water. Seek medical advice if skin irritation develops or persists.

First-aid measures after eye contact : Immediately flush the eyes with plenty of water for at least 15 minutes while holding eyelids apart to ensure flushing of the entire surface of the eye. Continue flushing for an additional 15 minutes if a physician is not immediately available. Seek medical attention, preferably an ophthalmologist, immediately.

First-aid measures after ingestion : If the material is swallowed, get immediate medical attention or advice. DO NOT induce vomiting unless directed to do so by medical personnel.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/injuries after skin contact : May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3. Advice for firefighters

Protection during fire fighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nickel(II) bis(sulfamate) tetrahydrate (124594-15-6)

Not applicable

Nickel(II) bromide hydrate (207569-11-7)

Not applicable

Boric acid (H3BO3) (10043-35-3)

ACGIH	ACGIH TWA (mg/m³)	2 mg/m³ (inhalable fraction)
ACGIH	ACGIH STEL (mg/m³)	6 mg/m³ (inhalable fraction)

Saccharin, sodium salt hydrate (82385-42-0)

Not applicable

8.2. Exposure controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection : Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eye protection : Safety glasses.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Clear
Odor	: Odorless
Odor threshold	: No data available
pH	: 3.15
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 100 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

None.

10.5. Incompatible materials

Not determined.

10.6. Hazardous decomposition products

Not determined.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Nickel Plating Solution	
ATE US (oral)	639.713 mg/kg body weight

Nickel(II) bis(sulfamate) tetrahydrate (124594-15-6)	
ATE US (oral)	500.000 mg/kg body weight

Nickel(II) bromide hydrate (207569-11-7)	
ATE US (oral)	500.000 mg/kg body weight

Boric acid (H3BO3) (10043-35-3)	
LD50 oral rat	2660 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 0.16 mg/l/4h
ATE US (oral)	2660.000 mg/kg body weight

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity : Suspected of causing genetic defects.

Carcinogenicity : May cause cancer.

Reproductive toxicity : May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Boric acid (H3BO3) (10043-35-3)	
EC50 Daphnia 1	115 - 153 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Saccharin, sodium salt hydrate (82385-42-0)	
LC50 fish 1	18300 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Boric acid (H3BO3) (10043-35-3)	
BCF fish 1	0
Log Pow	-0.757 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

SECTION 15: Regulatory information

15.1. US Federal regulations

Boric acid (H3BO3) (10043-35-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

Ferrous sulfate heptahydrate (7782-63-0)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Carc. 1B	Carcinogenicity Category 1B
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1B	Reproductive toxicity Category 1B
Resp. Sens. 1	Respiratory sensitisation Category 1
Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H334	May cause allergy or asthma symptoms or breathing difficulties if inhalated
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

SDS Preparation date: March 6, 2017 **Supersedes previous version:** New SDS

This SDS contains revisions in the following sections(s): Not applicable. New SDS

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End of Safety Data Sheet