

06/05/2019

Kit Components

Product code	Description
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EMPT-1	Extractable Metals 1
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Components:

EMPT-1A	Extractable Metals from Plastic Toys 1A
EMPT-1B	Extractable Metals from Plastic Toys 1B

1 Identification

- **Product identifier**
- **Product Name:** Extractable Metals from Plastic Toys 1A
- **Part Number:** EMPT-1A
- **Application of the substance / the mixture** Certified Reference Material
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SPEX CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA
- **Information department:** product safety department
- **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Carc. 1A H350 May cause cancer.

Repr. 1A H360 May damage fertility or the unborn child.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

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

- **Hazard pictograms**



GHS05



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

nitric acid

cadmium (non-pyrophoric)

Lead from Lead Oxide

arsenic

- **Hazard statements**

H314 Causes severe skin burns and eye damage.

H350 May cause cancer.

H360 May damage fertility or the unborn child.

- **Precautionary statements**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 1)

· HMIS-ratings (scale 0 - 4)

HEALTH	3
FIRE	0
REACTIVITY	0

Health = *3

Fire = 0

Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7697-37-2	nitric acid	10.0%
7440-43-9	cadmium (non-pyrophoric)	0.1%
7439-92-1	Lead from Lead Oxide	0.1%
7440-38-2	arsenic	0.1%

· Chemical identification of the substance/preparation

7664-39-3	hydrofluoric acid	0.2%
87-69-4	(+)-tartaric acid	0.2%
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	0.1%
7782-49-2	selenium	0.1%
7440-36-0	antimony	0.1%
7732-18-5	water, distilled, conductivity or of similar purity	89.0%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not give anything to eat or drink - Do not induce vomiting
- **Information for Doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
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 (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 2)

· **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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

7697-37-2	nitric acid	0.16 ppm
87-69-4	(+)-tartaric acid	1.6 mg/m ³
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m ³
7439-92-1	Lead from Lead Oxide	0.15 mg/m ³
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	1.5 mg/m ³
7782-49-2	selenium	0.6 mg/m ³
7440-36-0	antimony	1.5 mg/m ³
7440-38-2	arsenic	1.5 mg/m ³

· **PAC-2:**

7697-37-2	nitric acid	24 ppm
87-69-4	(+)-tartaric acid	17 mg/m ³
7440-43-9	cadmium (non-pyrophoric)	0.76 mg/m ³
7439-92-1	Lead from Lead Oxide	120 mg/m ³
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	17 mg/m ³
7782-49-2	selenium	6.6 mg/m ³
7440-36-0	antimony	13 mg/m ³
7440-38-2	arsenic	17 mg/m ³

· **PAC-3:**

7697-37-2	nitric acid	92 ppm
87-69-4	(+)-tartaric acid	100 mg/m ³
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m ³
7439-92-1	Lead from Lead Oxide	700 mg/m ³
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	99 mg/m ³
7782-49-2	selenium	40 mg/m ³
7440-36-0	antimony	80 mg/m ³
7440-38-2	arsenic	100 mg/m ³

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 respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

- **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

7697-37-2 nitric acid	
PEL	Long-term value: 5 mg/m ³ , 2 ppm
REL	Short-term value: 10 mg/m ³ , 4 ppm
	Long-term value: 5 mg/m ³ , 2 ppm

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 3)

TLV	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5.2 mg/m ³ , 2 ppm
7440-43-9 cadmium (non-pyrophoric)	
PEL	Long-term value: 0.005 mg/m ³ as Cd; see 29 CFR 1910.1027
REL	See Pocket Guide App. A
TLV	Long-term value: 0.01 0.002* mg/m ³ as Cd; *respirable fraction; BEI
7439-92-1 Lead from Lead Oxide	
PEL	Long-term value: 0.05* mg/m ³ *see 29 CFR 1910.1025
REL	Long-term value: 0.05* mg/m ³ *8-hr TWA ;See PocketGuide App.C
TLV	Long-term value: 0.05* mg/m ³ *and inorganic compounds, as Pb; BEI
7440-38-2 arsenic	
PEL	Long-term value: 0.5* 0.01** mg/m ³ as As; *organic**inorg. compds.; 29 CFR 1910.1018
REL	Ceiling limit value: 0.002 mg/m ³ as As; 15min; See Pocket Guide App. A
TLV	Long-term value: 0.01 mg/m ³ as As; BEI
· Ingredients with biological limit values:	
7440-43-9 cadmium (non-pyrophoric)	
BEI	5 µg/g creatinine Medium: urine Time: not critical Parameter: Cadmium (background)
	5 µg/L Medium: blood Time: not critical Parameter: Cadmium (background)
7439-92-1 Lead from Lead Oxide	
BEI	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead
	10 µg/100 ml Medium: blood Time: not critical Parameter: Lead (women of child bearing potential)
7440-38-2 arsenic	
BEI	35 µg As/L Medium: urine Time: end of workweek Parameter: Inorganic arsenic plus methylated metabolites (background)

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

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Respiratory protection:**

- 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.

(Contd. on page 5)

US

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 4)

· Protection of hands:



Protective gloves

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.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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 can not 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 found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic
Odour Threshold:	Not applicable.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	83 °C (181.4 °F)

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not applicable.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

Lower:	Not applicable.
Upper:	Not applicable.

· Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)

· Density at 20 °C (68 °F) 1.08015 g/cm³ (9.01385 lbs/gal)

· Relative density Not applicable.

· Vapor density Not applicable.

· Evaporation rate Not applicable.

· Solubility in / Miscibility with

Water: Fully miscible.

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

· Viscosity:

Dynamic:	Not applicable.
Kinematic:	Not applicable.

· Solvent content:

Water:	89.0 %
VOC content:	0.00 %

Solids content: 0.7 %

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 5)

· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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.

11 Toxicological information

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

- **LD/LC50 values that are relevant for classification:**

7440-43-9 cadmium (non-pyrophoric)

Oral	LD50	225 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
Product is suspected to cause damage to fertility.
Product is suspected to cause birth defects.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7440-43-9	cadmium (non-pyrophoric)	I
7439-92-1	Lead from Lead Oxide	2B
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate	3
7782-49-2	selenium	3
7440-38-2	arsenic	I

- **NTP (National Toxicology Program)**

7440-43-9	cadmium (non-pyrophoric)	K
7439-92-1	Lead from Lead Oxide	R
7440-38-2	arsenic	K

- **OSHA-Ca (Occupational Safety & Health Administration)**

7440-43-9	cadmium (non-pyrophoric)
7440-38-2	arsenic

12 Ecological information

- **Toxicity**
- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA


(Contd. of page 6)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	UN3264
· UN proper shipping name · DOT · ADR · IMDG · IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution, Hydrofluoric acid) 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACIDSOLUTION, HYDROFLUORIC ACID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID)
· Transport hazard class(es) · DOT, ADR, IMDG, IATA	
	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups · Stowage Category · Stowage Code	Warning: Corrosive substances 80 F-A,S-B Acids B SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· 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) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID)), 8, II

US

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 7)

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

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

7697-37-2	nitric acid
7664-39-3	hydrofluoric acid
7440-43-9	cadmium (non-pyrophoric)
7439-92-1	Lead from Lead Oxide
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate
7782-49-2	selenium
7440-36-0	antimony
7440-38-2	arsenic

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

7697-37-2	nitric acid
87-69-4	(+)-tartaric acid
7440-43-9	cadmium (non-pyrophoric)
7439-92-1	Lead from Lead Oxide
7440-47-3	Chromium from Chromium(III) nitrate nonahydrate
7782-49-2	selenium
7440-36-0	antimony
7440-38-2	arsenic
7732-18-5	water, distilled, conductivity or of similar purity

- **Proposition 65**

- **Chemicals known to cause cancer:**

7440-43-9	cadmium (non-pyrophoric)
7439-92-1	Lead from Lead Oxide
7440-38-2	arsenic

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

7440-43-9	cadmium (non-pyrophoric)
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- **Chemicals known to cause developmental toxicity:**

7440-43-9	cadmium (non-pyrophoric)
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- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

7440-43-9	cadmium (non-pyrophoric)	B1
7439-92-1	Lead from Lead Oxide	B2
7782-49-2	selenium	D
7440-38-2	arsenic	A

- **TLV (Threshold Limit Value established by ACGIH)**

7440-43-9	cadmium (non-pyrophoric)	A2
7439-92-1	Lead from Lead Oxide	A3
7440-38-2	arsenic	A1

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

7440-43-9	cadmium (non-pyrophoric)
7440-38-2	arsenic

- **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 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IA

(Contd. of page 8)

· **Hazard-determining components of labeling:**

nitric acid
cadmium (non-pyrophoric)
Lead from Lead Oxide
arsenic

· **Hazard statements**

H314 Causes severe skin burns and eye damage.
H350 May cause cancer.
H360 May damage fertility or the unborn child.

· **Precautionary statements**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** product safety department

· **Contact:**

SPEX CertiPrep, LLC.
1-732-549-7144

· **Date of preparation / last revision** 06/05/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
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)
VOC: Volatile Organic Compounds (USA, EU)
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
BEI: Biological Exposure Limit
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 1A: Carcinogenicity – Category 1A
Repr. 1A: Reproductive toxicity – Category 1A

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

1 Identification

- **Product identifier**
- **Product Name:** Extractable Metals from Plastic Toys 1B
- **Part Number:** EMPT-1B
- **Application of the substance / the mixture** Certified Reference Material
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SPEX CertiPrep, LLC.
203 Norcross Ave, Metuchen,
NJ 08840 USA
- **Information department:** product safety department
- **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

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

- **Hazard pictograms**



GHS05



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

nitric acid

mercury

- **Hazard statements**

H314 Causes severe skin burns and eye damage.

H360 May damage fertility or the unborn child.

- **Precautionary statements**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

(Contd. on page 2)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys 1B

(Contd. of page 1)

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

7697-37-2	nitric acid	10.0%
7439-97-6	mercury	0.1%

· **Chemical identification of the substance/preparation**

7440-39-3	Barium from Barium carbonate	0.1%
7732-18-5	water, distilled, conductivity or of similar purity	89.8%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not give anything to eat or drink - Do not induce vomiting
- **Information for Doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
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 (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

7697-37-2	nitric acid	0.16 ppm
7439-97-6	mercury	0.15 mg/m ³
7440-39-3	Barium from Barium carbonate	1.5 mg/m ³

· **PAC-2:**

7697-37-2	nitric acid	24 ppm
7439-97-6	mercury	1.7 mg/m ³

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys 1B

(Contd. of page 2)

7440-39-3	Barium from Barium carbonate	180 mg/m ³
· PAC-3:		
7697-37-2	nitric acid	92 ppm
7439-97-6	mercury	8.9 mg/m ³
7440-39-3	Barium from Barium carbonate	1,100 mg/m ³

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 respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· Components with limit values that require monitoring at the workplace:

7697-37-2 nitric acid

PEL	Long-term value: 5 mg/m ³ , 2 ppm
REL	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5 mg/m ³ , 2 ppm
TLV	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5.2 mg/m ³ , 2 ppm

7439-97-6 mercury

PEL	Long-term value: 0.1 mg/m ³ as Hg; see OSHA standard interpretation memo
REL	Long-term value: 0.05* mg/m ³ Ceiling limit value: 0.1 mg/m ³ as Hg; *Vapor; Skin
TLV	Long-term value: 0.025 mg/m ³ as Hg; Skin; BEI

· Ingredients with biological limit values:

7439-97-6 mercury

BEI	35 µg/g creatinine Medium: urine Time: prior to shift Parameter: Total inorganic mercury (background)
	15 µg/L Medium: blood Time: end of shift at end of workweek Parameter: Total inorganic mercury (background)

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

(Contd. on page 4)

Product Name: Extractable Metals from Plastic Toys IB

(Contd. of page 3)

Respiratory protection:

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

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.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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 can not 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 found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

9 Physical and chemical properties**Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	According to product specification
Odor:	Characteristic
Odour Threshold:	Not applicable.

pH-value: Not applicable.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	83 °C (181.4 °F)

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Decomposition temperature: Not applicable.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	Not applicable.
Upper:	Not applicable.

Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)

Density at 20 °C (68 °F) 1.06614 g/cm³ (8.89694 lbs/gal)

Relative density Not applicable.

Vapor density Not applicable.

Evaporation rate Not applicable.

Solubility in / Miscibility with

Water: Fully miscible.

Partition coefficient (n-octanol/water): Not applicable.

Viscosity:

Dynamic:	Not applicable.
Kinematic:	Not applicable.

Solvent content:

Water:	89.8 %
VOC content:	0.00 %

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys 1B

(Contd. of page 4)

Solids content: 0.1 %
Other information No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Corrosive
Irritant
Product is suspected to cause damage to fertility.
Product is suspected to cause birth defects.
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7439-97-6 mercury

3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

(Contd. on page 6)

US

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019


Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys IB

(Contd. of page 5)

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number · DOT, ADR, IMDG, IATA	UN2031
· UN proper shipping name · DOT · ADR · IMDG, IATA	Nitric acid 2031 NITRIC ACID SOLUTION NITRIC ACID SOLUTION
· Transport hazard class(es) · DOT, ADR, IMDG, IATA	
	
· Class · Label	8 Corrosive substances 8
· Packing group · DOT, ADR, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups · Stowage Category	Warning: Corrosive substances 80 F-A,S-B Acids D
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· 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) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 2031 NITRIC ACID SOLUTION, 8, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

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

7697-37-2	nitric acid
7439-97-6	mercury
7440-39-3	Barium from Barium carbonate

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

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys 1B

(Contd. of page 6)

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

7439-97-6 mercury

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

7439-97-6	mercury	D
7440-39-3	Barium from Barium carbonate	D, CBD(inh), NL(oral)

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

7439-97-6	mercury	A4
7440-39-3	Barium from Barium carbonate	A4

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

None of the ingredients is listed.

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

· **Hazard pictograms**



GHS05

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

nitric acid

mercury

· **Hazard statements**

H314 Causes severe skin burns and eye damage.

H360 May damage fertility or the unborn child.

· **Precautionary statements**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** product safety department

· **Contact:**

SPEX CertiPrep, LLC.

1-732-549-7144

· **Date of preparation / last revision** 06/05/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

VOC: Volatile Organic Compounds (USA, EU)

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

BEL: Biological Exposure Limit

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 06/05/2019

Reviewed on 06/05/2019

Product Name: Extractable Metals from Plastic Toys 1B

Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Repr. 1B: Reproductive toxicity – Category 1B

(Contd. of page 7)

US