Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

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

· **Product identifier**

· **Trade name: Tuning Solution 1**

· **Article number:** CL-TUNE-1
· **Relevant identified uses of the substance or mixture and uses advised against**
· **Application of the substance / the preparation** Certified Reference Material

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
SPEX CertiPrep, Inc - 203 Norcross Ave, Metuchen, NJ 08840

· **Information department:** product safety department
· **Emergency telephone number:**
Emergency Phone Number (24 hours)
CHEMTREC (800-424-9300)
Outside US: 703-527-3887

2 Hazards identification

· **Classification of the substance or mixture**

GHS07

H315 Causes skin irritation.
H319 Causes serious eye irritation.

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

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Take off contaminated clothing and wash before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 1
Fire = 0
Reactivity = 0

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

(Contd. on page 2)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 1)

· **vPvB:** Not applicable.

3 Composition/information on ingredients

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

· **Dangerous components:**			
7647-01-0	hydrochloric acid	H314; H335	5.0%
7697-37-2	nitric acid	H272; H314	2.0%

· **Chemical identification of the substance/preparation**			
7439-92-1	Lead from Lead Oxide	H360; H373; H400; H410; H302; H332	0.001%
7440-74-6	indium		0.001%
7440-39-3	Barium from Barium carbonate	H302	0.001%
7440-45-1	Cerium from Cerium(III) nitrate hexahydrate	H318	0.001%
7440-28-0	Thallium from Thallium nitrate	H300; H330; H373; H411	0.001%
7439-95-4	magnesium	H250; H260	0.001%
7440-48-4	cobalt	H334; H317; H413	0.001%
7440-16-6	Rhodium from Rhodium trichloride trihydrate	H318; H302	0.001%
7440-65-5	Yttrium from Yttrium oxide		0.001%
7439-93-2	Lithium from Lithium carbonate	H302; H319	0.001%
7440-61-1	Uranium from Uranyl Nitrate Hexahydrate	H300; H330; H373; H411	0.001%
7440-41-7	Beryllium from Beryllium Acetate	H300; H310; H330; H350	0.001%
7732-18-5	water, distilled, conductivity or of similar purity		92.988%

4 First aid measures

· **Description of first aid measures**
· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **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 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** CO2, 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:** No special measures required.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** 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).
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.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 3)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 2)

Prevent formation of aerosols.
· **Information about protection against explosions and fires:** No special measures required.

· **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:**	
7647-01-0 hydrochloric acid	
PEL	Short-term value: C 7 mg/m³, C 5 ppm
REL	Short-term value: C 7 mg/m³, C 5 ppm
TLV	Short-term value: C 2.98 mg/m³, C 2 ppm
7697-37-2 nitric acid	
PEL	5 mg/m³, 2 ppm
REL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm
TLV	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm

· **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.
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

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: Fluid

(Contd. on page 4)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 3)

Color:	According to product specification
· **Odor:**	Characteristic
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100°C
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20°C:**	23 hPa
· **Density at 20°C:**	1.01833 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Segregation coefficient (n-octonol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
Water:	93.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **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:**		
7647-01-0 hydrochloric acid		
Oral	LD50	900 mg/kg (rabbit)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.

(Contd. on page 5)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 4)

12 Ecological information

· **Toxicity**
· **Acquatic 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 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **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.

14 Transport information

· **DOT regulations:**

· **Hazard class:** 8
· **Identification number:** UN3264
· **Packing group:** III
· **Proper shipping name (technical name):** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID)
· **Label** 8

· **Land transport ADR/RID (cross-border):**

· **ADR/RID class:** 8 Corrosive substances
· **Danger code (Kemler):** 80
· **UN-Number:** 3264
· **Packaging group:** III
· **Label:** 8
· **UN proper shipping name:** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID)

· **Maritime transport IMDG:**

· **IMDG Class:** 8
· **UN Number:** 3264
· **Label** 8
· **Packaging group:** III
· **EMS Number:** F-A,S-B
· **Marine pollutant:** No
· **Segregation groups** Acids

(Contd. on page 6)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 5)

· **Proper shipping name:**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID)

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:**	8
· **UN/ID Number:**	3264
· **Label**	8
· **Packaging group:**	III
· **Proper shipping name:**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID)

· **UN "Model Regulation":** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 8, III
· **Special precautions for user** Warning: Corrosive substances
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**	
7647-01-0	hydrochloric acid
7697-37-2	nitric acid

· **Section 313 (Specific toxic chemical listings):**	
7647-01-0	hydrochloric acid
7697-37-2	nitric acid
7440-28-0	Thallium from Thallium nitrate
7440-48-4	cobalt
7439-93-2	Lithium from Lithium carbonate

· **TSCA (Toxic Substances Control Act):**	
7647-01-0	hydrochloric acid
7697-37-2	nitric acid
7439-92-1	Lead from Lead Oxide
7440-74-6	indium
7440-39-3	Barium from Barium carbonate
7440-28-0	Thallium from Thallium nitrate
7439-95-4	magnesium
7440-48-4	cobalt
7440-65-5	Yttrium from Yttrium oxide
7439-93-2	Lithium from Lithium carbonate
7732-18-5	water, distilled, conductivity or of similar purity

· **Proposition 65**

· **Chemicals known to cause cancer:**	
7439-92-1	Lead from Lead Oxide
7440-48-4	cobalt

· **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:**	
7439-93-2	Lithium from Lithium carbonate

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**		
7439-92-1	Lead from Lead Oxide	B2
7440-39-3	Barium from Barium carbonate	CBD

· **IARC (International Agency for Research on Cancer)**		
7647-01-0	hydrochloric acid	3

(Contd. on page 7)

Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 05/26/2011 Reviewed on 05/23/2011

Trade name: Tuning Solution 1

(Contd. of page 6)

7439-92-1	Lead from Lead Oxide	2A
7440-48-4	cobalt	2B, 2A

· **NTP (National Toxicology Program)**

7439-92-1	Lead from Lead Oxide	R

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

7647-01-0	hydrochloric acid	A4
7439-92-1	Lead from Lead Oxide	A3
7440-39-3	Barium from Barium carbonate	A4
7440-48-4	cobalt	A3
7440-61-1	Uranium from Uranyl Nitrate Hexahydrate	A1

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

7440-61-1	Uranium from Uranyl Nitrate Hexahydrate

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

None of the ingredients is listed.

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

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
· **Precautionary statements**
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Specific treatment (see on this label).
Take off contaminated clothing and wash before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
· **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 MSDS:** product safety department
· **Contact:**
SPEX CertiPrep Inc.
732-549-7144
· **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)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent