

Printing date 03/30/2019 Version Number 4 Reviewed on 03/21/2019

1 Identification

· Product identifier

· Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

· Part number: QCI-700A

· Application of the substance / the mixture Reagents and Standards for Analytical Chemical Laboratory Use

· Details of the supplier of the safety data sheet

Manufacturer/Supplier: Agilent Technologies, Inc.

5301 Stevens Creek Blvd. Santa Clara, CA 95051 USA

· Information department:

Telephone: 800-227-9770

e-mail: pdl-msds author@agilent.com

· Emergency telephone number: CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· Classification of the substance or mixture



GHS08 Health hazard

Carc. 1A H350 May cause cancer.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

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





GHS08

GHS05

- · Signal word Danger
- · Hazard-determining components of labeling:

nitric acid

Nitric acid, nickel(2+) salt, hexahydrate

· Hazard statements

Causes skin irritation.

Causes serious eye damage.

May cause cancer.

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· Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin: Wash with plenty of water.

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.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

Store locked up.

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

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



Health = 3Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)



*3 Health = *3

Fire = 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	4.95%
10043-35-3	boric acid	0.116%
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	0.101%

4 First-aid measures

- · Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- · 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. Then consult a doctor.
- · After swallowing: If symptoms persist consult doctor.

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- · 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 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

Wear protective equipment. Keep unprotected persons away.

- 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).

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
7784-27-2	aluminium nitrate	83 mg/m ³
7782-61-8	iron (III) nitrate nonahydrate	22 mg/m ³
87-69-4	(+)-tartaric acid	1.6 mg/m ³
10043-35-3	boric acid	6 mg/m³
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	1.5 mg/m ³
10377-66-9	manganese dinitrate	9.8 mg/m ³
10196-18-6	zinc(II) nitrate hexahydrate	27 mg/m ³
7664-39-3	hydrogen fluoride	1.0 ppm
10026-22-9	cobalt (II) nitrate hexahydrate	0.3 mg/m^3
10022-31-8	barium nitrate	2.9 mg/m ³
7803-55-6	ammonium trioxovanadate	0.01 mg/m ³
10022-68-1	Nitric acid, cadmium salt, tetrahydrate	0.27 mg/m ³
10099-74-8	lead dinitrate	0.24 mg/m ³
7761-88-8	silver nitrate	0.047 mg/n
7446-08-4	selenium dioxide	0.84 mg/m ³
		(Contd. on pag



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10042-76-9	strontium nitrate	(Contd. of pag 5.7 mg/m³
	diarsenic trioxide	0.27 mg/m
10102-45-1	thallium nitrate	0.078 mg/i
1313-27-5	molybdenum trioxide	2.3 mg/m ³
7440-36-0		1.5 mg/m³
PAC-2:	•	
	nitric acid	24 ppm
7784-27-2	aluminium nitrate	920 mg/n
7782-61-8	iron (III) nitrate nonahydrate	110 mg/n
	(+)-tartaric acid	17 mg/m ³
10043-35-3		23 mg/m ³
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	53 mg/m ³
10377-66-9	manganese dinitrate	16 mg/m ³
	zinc(II) nitrate hexahydrate	300 mg/n
7664-39-3	hydrogen fluoride	24 ppm
10026-22-9	cobalt (II) nitrate hexahydrate	23 mg/m ³
10022-31-8	barium nitrate	350 mg/n
7803-55-6	ammonium trioxovanadate	0.11 mg/ı
10022-68-1	Nitric acid, cadmium salt, tetrahydrate	2.1 mg/m
10099-74-8	lead dinitrate	180 mg/n
7761-88-8	silver nitrate	0.9 mg/m
7446-08-4	selenium dioxide	1.6 mg/m
10042-76-9	strontium nitrate	62 mg/m ³
1327-53-3	diarsenic trioxide	3.0 mg/m
10102-45-1	thallium nitrate	4.3 mg/m
1313-27-5	molybdenum trioxide	43 mg/m ³
7440-36-0	antimony	13 mg/m ³
· PAC-3:		
7697-37-2	nitric acid	92 ppm
	aluminium nitrate	5,500 mg/s
7782-61-8	iron (III) nitrate nonahydrate	640 mg/m³
87-69-4	(+)-tartaric acid	100 mg/m ³
10043-35-3	boric acid	830 mg/m ²
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	320 mg/m ³
	manganese dinitrate	96 mg/m ³
10196-18-6	zinc(II) nitrate hexahydrate	1,800 mg/i
7664-39-3	hydrogen fluoride	44 ppm
	cobalt (II) nitrate hexahydrate	140 mg/m ³
10022-31-8	barium nitrate	2,100 mg/s
7803-55-6	ammonium trioxovanadate	80 mg/m ³
10022-68-1	Nitric acid, cadmium salt, tetrahydrate	13 mg/m ³



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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

10000 54.0		(Contd. of page 4)
	lead dinitrate	1,100 mg/m ³
	silver nitrate	5.4 mg/m ³
	selenium dioxide	9.5 mg/m ³
	strontium nitrate	370 mg/m ³
	diarsenic trioxide	9.1 mg/m ³
10102-45-1	thallium nitrate	26 mg/m ³
	molybdenum trioxide	260 mg/m ³
7440-36-0	antimony	80 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.

- · 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

Con	troi parameters		
· Con	· Components with limit values that require monitoring at the workplace: 7697-37-2 nitric acid		
7697			
PEL	Long-term value: 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		
1004	10043-35-3 boric acid		
TLV	Short-term value: 6* mg/m³ Long-term value: 2* mg/m³ **as inhalable fraction		

- · 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.

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

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Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

· Breathing equipment:

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· Protection of hands:

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· Material of gloves

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

• **Penetration time of glove material** For normal use: nitrile rubber: 1 hour

For normal use: nitrile rubber: 1 nour

For direct contact with the chemical: butyl rubber: >4 hours

· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

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

Form: Fluid

Color: According to product specification

Odor: CharacteristicOdor threshold: Not determined.

· pH-value: N

· Change in condition

Melting point/Melting range: Undetermined. **Boiling point/Boiling range:** 100 °C (212 °F)

· Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

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

Not determined.

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

	(Contd. of p
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/wate	er): Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent content:	
Water:	93.1 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	1.9 %
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:

reductority.
· LD/LC50 values that are relevant for classification:
ATE (Acute Toxicity Estimate)
Inhalative LC50/4 h 126 mg/L (rat)

7697-37-2		
Inhalative	LC50/4 h	67 mg/L (rat)
10043-35-3 boric acid		
Oral	LD50	2,660 mg/kg (rat)

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

| Dermal | LD50 | >2,000 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 0.16 mg/L (rat) |
| 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate |
Oral	LD50	1,620 mg/kg (rat)
Oral	LD50	1,276 mg/kg (rat)
Oral	LD50	1,276 mg/kg (rat)

- Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- on the eye: 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: Irritant

· Carcinogenic categories

· IARC (Inte	rnational Agency for Research on Cancer)	
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	1
543-81-7	acetic acid beryllium salt	1
10026-22-9	cobalt (II) nitrate hexahydrate	2B
10022-68-1	Nitric acid, cadmium salt, tetrahydrate	1
10099-74-8	lead dinitrate	2A
7446-08-4	selenium dioxide	3
1327-53-3	diarsenic trioxide	1
· NTP (Natio	nal Toxicology Program)	
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	K
	acetic acid beryllium salt	K
10022-68-1	Nitric acid, cadmium salt, tetrahydrate	K
10099-74-8	lead dinitrate	R
1327-53-3	diarsenic trioxide	K
· 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.

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

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- · 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.

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· UN-Number · DOT, IMDG, IATA	UN3264
· UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
· DOT	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC
· IMDG, IATA	ACID)

- · Transport hazard class(es)
- · DOT, IMDG, IATA



· Class · Label	8 Corrosive substances 8
· Packing group · DOT, 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.

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

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 $\cdot \ Transport/Additional \ information:$

 $\cdot \, DOT$

• **Quantity limitations**On passenger aircraft/rail: 1 L
On cargo aircraft only: 30 L

· IMDG

· Limited quantities (LQ)· Excepted quantities (EQ)ILCode: 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), 8, II

15 Regulatory information

1327-53-3 diarsenic trioxide 10102-45-1 thallium nitrate

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

· Section 355 (extremely hazardous substances):				
nitric acid				
hydrogen fluoride				
diarsenic trioxide				
Section 313 (Specific toxic chemical listings):				
nitric acid				
aluminium nitrate				
iron (III) nitrate nonahydrate				
Nitric acid, nickel(2+) salt, hexahydrate				
manganese dinitrate				
zinc(II) nitrate hexahydrate				
chromium (III) nitrate nonahydrate				
hydrogen fluoride				
acetic acid beryllium salt				
cobalt (II) nitrate hexahydrate				
barium nitrate				
ammonium trioxovanadate				
cupric nitrate				
Nitric acid, cadmium salt, tetrahydrate				
lead dinitrate				
silver nitrate				
selenium dioxide				
strontium nitrate				

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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

1212 27 2	T 111 (* *)	(Contd. of page
	molybdenum trioxide	
	antimony	
,	xic Substances Control Act):	
	nitric acid	
	(+)-tartaric acid	
	boric acid	
	manganese dinitrate	
	hydrogen fluoride	
	barium nitrate	
	ammonium trioxovanadate	
	lead dinitrate	
	silver nitrate	
	selenium dioxide	
	strontium nitrate	
	diarsenic trioxide	
	thallium nitrate	
	molybdenum trioxide	
	antimony	
7732-18-5	water	
	(21st Century Act): (Substances not listed)	
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	
· Propositio	n 65	
·Chemicals	known to cause cancer:	
	Nitric acid, nickel(2+) salt, hexahydrate	
	acetic acid beryllium salt	
	Nitric acid, cadmium salt, tetrahydrate	
10099-74-8	lead dinitrate	
1327-53-3	diarsenic trioxide	
	known to cause reproductive toxicity for females:	
	e ingredients is listed.	
	known to cause reproductive toxicity for males:	
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	
	known to cause developmental toxicity:	
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	
1327-53-3	diarsenic trioxide	
	nic categories	
	ronmental Protection Agency)	
	boric acid	I (oral)
	manganese dinitrate	D
10022-31-8	barium nitrate	D, CBD(inh), NL(ora
	lead dinitrate	B2



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Trade name: QualityCheck Trace Metals Sample - Part A (10 mL)

			(Contd. of page 11)	
7446-08-4	selenium dioxide	D		
1327-53-3	diarsenic trioxide	A		
10102-45-1	thallium nitrate	II		
· TLV (Threshold Limit Value established by ACGIH)				
10043-35-3	boric acid		A4	
10022-31-8	barium nitrate		A4	
10099-74-8	lead dinitrate		A3	
1327-53-3	diarsenic trioxide		A1	
NIOSH-Ca (National Institute for Occupational Safety and Health)				
None of the	ingredients is listed.			

- · National regulations:
- · Additional classification according to Decree on Hazardous Materials:

Carcinogenic hazardous material group III (dangerous).

· 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

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

- · Department issuing SDS: Document Control / Regulatory
- · Contact: regulatory@ultrasci.com
- · Date of preparation / last revision 03/30/2019 / 3
- 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

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation - Category 1

Carc. 1A: Carcinogenicity - Category 1A

* Data compared to the previous version altered.