

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 1 of 12

1. Identification
Product identifier

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Recommended use of the chemical and restrictions on use
Use of the substance/mixture

 Reagents and laboratory chemicals
 Only for laboratory and analysis purposes.

Uses advised against

Do not use for private purposes (household).

Details of the supplier of the safety data sheet
Details of the supplier of the safety data sheet

| | |
|-------------------------|---------------------------------------|
| Company name: | AnalytiChem Services, Unipessoal, Lda |
| Street: | Rua de Júlio Dinis 676 7º |
| Place: | P-4050-320 Porto |
| Telephone: | +351 226002917 |
| E-mail: | info@analytichem.com |
| Contact person: | SDS service department |
| E-mail: | SDS@analytichem.com |
| Internet: | www.analytichem.com |
| Responsible Department: | SDS service department |

Supplier or manufacturer details

| | | |
|--------------------------------|--|----------------------------|
| Company name: | AnalytiChem Canada Inc. | |
| | Québec, CANADA | |
| Street: | 21800 Clark Graham Ave | |
| Place: | CDN-H9X 4B6 Baie-D'Urfé | |
| Telephone: | +1 (800) 361-6820 | Telefax: +1 (800) 253-5549 |
| E-mail: | info@analytichem.com | |
| Contact person: | SDS service department | |
| E-mail: | SDS@analytichem.com | |
| Internet: | www.analytichem.com | |
| Responsible Department: | AnalytiChem: | |
| | EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20 | |
| | EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200 | |
| | EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848 | |
| | UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500 | |
| | USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378 | |
| | Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701 | |
| | Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333 | |
| Emergency phone number: | +1 703-741-5970 (CHEMTREC) | |

Further Information

This product is a mixture. REACH Registration Number see section 3.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 2 of 12

2. Hazard(s) identification

Classification of the chemical

Regulation (EC) No 1272/2008

Met. Corr. 1; H290
 Skin Corr. 1B; H314
 Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

nitric acid

Signal word: Danger

Pictograms:



Hazard statements

H290 May be corrosive to metals
 H314 Causes severe skin burns and eye damage
 EUH071 Corrosive to the respiratory tract.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
 P280 Wear protective gloves/protective clothing and eye protection/face protection.
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 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.

Hazards not otherwise classified

No data available

3. Composition/information on ingredients

Mixtures

Chemical characterization

Mixtures in aqueous solution

Relevant ingredients

| CAS No | Components | | | Quantity |
|-----------|---|--------------|------------------|------------|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 7697-37-2 | nitric acid | | | 5 - < 10 % |
| | 231-714-2 | 007-030-00-3 | 01-2119487297-23 | |
| | Ox. Liq. 3, Met. Corr. 1, Acute Tox. 3, Skin Corr. 1A, Eye Dam. 1; H272 H290 H331 H314 H318 EUH071 | | | |

Full text of H and EUH statements: see section 16.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 3 of 12

Specific Conc. Limits, M-factors and ATE

| CAS No | EC No | Components | Quantity |
|-----------|-----------|---|------------|
| | | Specific Conc. Limits, M-factors and ATE | |
| 7697-37-2 | 231-714-2 | nitric acid | 5 - < 10 % |
| | | inhalation: ATE 2,65 mg/l (vapours) Ox. Liq. 3; H272: >= 65 - 100 Skin Corr. 1A; H314: >= 20 - 100 Skin Corr. 1B; H314: >= 5 - < 20 | |

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

4. First-aid measures
Description of first aid measures
General information

First aider: Pay attention to self-protection!

After inhalation

Provide fresh air.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

Protect uninjured eye.

After ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting. Do not allow a neutralisation agent to be drunk.

Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Causes burns.

Irritant

Cough

Dyspnoea

Vomiting

Methaemoglobinaemia

Risk of serious damage to eyes.

Indication of any immediate medical attention and special treatment needed

No data available

5. Fire-fighting measures
Extinguishing media
Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 4 of 12

Specific hazards arising from the chemical

Non-combustible liquids
 Hazardous combustion products
 In case of fire may be liberated:
 Nitrogen oxides (NO_x)

Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.
 In case of fire and/or explosion do not breathe fumes.
 Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
 Move undamaged containers from immediate hazard area if it can be done safely.
 Use water spray jet to protect personnel and to cool endangered containers.

6. Accidental release measures
Personal precautions, protective equipment and emergency procedures
General advice

Corrosive to metals.

For non-emergency personnel

Provide adequate ventilation.
 Use personal protection equipment.
 Avoid contact with skin, eyes and clothes.
 Remove persons to safety.
 Emergency procedures
 Consult an expert
 Do not breathe dust/fume/gas/mist/vapors/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment (PPE): see section 8

Environmental precautions

Do not allow to enter into surface water or drains.

Methods and material for containment and cleaning up
For containment

Cover drains.
 Prevent spread over a wide area (e.g. by containment or oil barriers).
 Collect in closed and suitable containers for disposal.
 Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.
 Do not breathe dust/fume/gas/mist/vapors/spray.
 Wear breathing apparatus if exposed to vapors/dusts/aerosols.

Reference to other sections

Safe handling: see section 7
 Personal protection equipment (PPE): see section 8
 Disposal: see section 13

7. Handling and storage
Precautions for safe handling

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 5 of 12

Advice on safe handling

Read label before use. Handle and open container with care.
 When using do not eat, drink, smoke, sniff. Use personal protection equipment.
 Provide adequate ventilation. Avoid contact with skin, eyes and clothes.
 Do not breathe vapor or spray.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately.
 Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Avoid: aerosol or mist formation Do not breathe vapor or spray.

Further information on handling

Draw up and observe skin protection programme.
 Wash hands and face before breaks and after work and take a shower if necessary.
 Take off immediately all contaminated clothing and wash it before reuse.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Corrosive to metals.
 Unsuitable container/equipment material: Metal
 The product develops hydrogen in an aqueous solution in contact with metals.

Hints on joint storage

Take national regulations into account.

Further information on storage conditions

Keep container tightly closed.

Specific end use(s)

Laboratory chemicals

8. Exposure controls/personal protection

Control parameters

Exposure limits

| CAS No | Substance | ppm | mg/m ³ | Category | Origin |
|-----------|-------------|-----|-------------------|---------------|------------|
| 7697-37-2 | Nitric acid | 2 | 5 | TWA (8 h) | PEL |
| | | 2 | 5 | TWA (8 h) | REL |
| | | 4 | 10 | STEL (15 min) | REL |
| 7697-37-2 | Nitric acid | 2 | 5.2 | TWA (8 h) | ACGIH-2025 |
| | | 4 | 10 | STEL (15 min) | ACGIH-2025 |

Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.
 If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles
 Wear eye/face protection.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 6 of 12

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of the protective agents should be clarified with their suppliers.

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirator's use.

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

9. Physical and chemical properties
Information on basic physical and chemical properties

| | | |
|---|-------------------|-------------------------|
| Physical state: | Liquid | |
| Color: | clear | |
| Odor: | like: Nitric acid | |
| Odour threshold: | No data available | |
| Melting point/freezing point: | | No data available |
| Boiling point or initial boiling point and boiling range: | | No data available |
| Flammability: | | No data available |
| Lower explosion limits: | | No data available |
| Upper explosion limits: | | No data available |
| Flash point: | | No data available |
| Auto-ignition temperature: | | No data available |
| Decomposition temperature: | | No data available |
| pH-Value (at 20 °C): | | <2 |
| Viscosity / kinematic: | | No data available |
| Water solubility: | | completely miscible |
| Solubility in other solvents | | |
| No data available | | |
| Dissolution rate: | | No data available |
| Partition coefficient n-octanol/water: | | No data available |
| Dispersion stability: | | No data available |
| Vapor pressure: | | No data available |
| Vapor pressure: | | No data available |
| Density (at 22 °C): | | 1,022 g/cm ³ |
| Relative density: | | No data available |
| Bulk density: | | No data available |

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 7 of 12

Relative vapour density: No data available
 Particle characteristics: No data available

Other information

Information with regard to physical hazard classes

Explosive properties
 No data available
 Sustained combustibility: No data available
 Self-ignition temperature
 Solid: No data available
 Gas: No data available
 Oxidizing properties
 Oxidizing

Other safety characteristics

Evaporation rate: No data available
 Solvent separation test: No data available
 Solvent content: 0
 Solid content: 0
 Sublimation point: No data available
 Softening point: No data available
 Pour point: No data available
 No data available:
 Viscosity / dynamic: No data available
 Flow time: No data available

Further Information

Corrosive to metals.

10. Stability and reactivity

Reactivity

Corrosive to metals.
 Oxidising agent

Chemical stability

The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions

Alkali (lye)
 The product develops hydrogen in an aqueous solution in contact with metals.
 Amines, Ammonia, Alcohols, Alkali metals, Hydrogen peroxide
 Copper, Combustible solids, Solvent, Alkaline earth metal, mercury (Hg).

Conditions to avoid

No data available

Incompatible materials

Cellulose
 Metal
 The product develops hydrogen in an aqueous solution in contact with metals.

Hazardous decomposition products

In case of fire may be liberated:
 SECTION 5: Fire fighting measures

Further information

No data available

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 8 of 12

11. Toxicological information

Information on toxicological effects

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

| CAS No | Components | | | | |
|-----------|-------------------|---------------|---------|--------|--------|
| | Exposure route | Dose | Species | Source | Method |
| 7697-37-2 | nitric acid | | | | |
| | inhalation vapour | ATE 2,65 mg/l | | | |

Irritation and corrosivity

Skin corrosion/irritation: Causes severe skin burns and eye damage
 Serious eye damage/eye irritation: Causes serious eye damage
 Corrosive to the respiratory tract.
 Following ingestion Gastric perforation
 Irritating to respiratory system.
 Pulmonary oedema
 Mucous membrane irritations in the mouth, throat, esophagus and gastrointestinal tract.
 see also Section 4

Sensitizing effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
 Carcinogenicity: Based on available data, the classification criteria are not met.
 Reproductive toxicity: Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Route(s) of Entry

There are no data available on the mixture itself.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

Information on other hazards

Endocrine disrupting properties

There are no data available on the mixture itself.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 9 of 12

Other information

There are no data available on the mixture itself.

Further information

There are no data available on the mixture itself.

12. Ecological information
Ecotoxicity

Based on available data, the classification criteria are not met.

| CAS No | Components | | | | | |
|-----------|-------------------------|--------------|-----------------|---------|--|---|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 7697-37-2 | nitric acid | | | | | |
| | Acute fish toxicity | LC50 mg/l | 1559 | 96 h | Topeka shiner | Environmental Toxicology and Chemistry, other: ASTM E729-26 |
| | Fish toxicity | NOEC | 268 mg/l | 30 d | juvenile Topeka shiner and with juvenile Fathead m | Study report (2009) Growth tests estimated the test chemical |
| | Algae toxicity | NOEC | > 419 mg/l | 10 d | several benthic diatoms; see results | Marine Biology 43:307-315 (1977) Ten cultures of benthic diatoms were iso |
| | Acute bacteria toxicity | EC50 | > 1000 mg/l () | 3 h | Activated sludge | Study report (2008) OECD Guideline 209 |

Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

There are no data available on the mixture itself.

Mobility in soil

There are no data available on the mixture itself.

Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

Other adverse effects

- Discharge into the environment must be avoided.
- Harmful effect due to pH shift.
- Forms corrosive mixtures with water even if diluted.

Further information

Do not allow to enter into surface water or drains.

13. Disposal considerations
Waste treatment methods
Disposal recommendations

- Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
- Send to a physico-chemical treatment facility under observation of official regulations.
- Do not empty into drains.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 10 of 12

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

Waste codes/waste designations according to EWC/AVV

14. Transport information
Land transport (ADR/RID)

| | |
|---|---|
| <u>UN number or ID number:</u> | UN 3264 |
| <u>UN proper shipping name:</u> | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| <u>Transport hazard class(es):</u> | 8 |
| <u>Packing group:</u> | III |
| Hazard label: | 8 |
| Classification Code: | C1 |
| Special Provisions: | 274 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |
| Transport category: | 3 |
| Hazard No: | 80 |
| Tunnel restriction code: | E |

Inland waterways transport (ADN)

| | |
|---|---|
| <u>UN number or ID number:</u> | UN 3264 |
| <u>UN proper shipping name:</u> | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| <u>Transport hazard class(es):</u> | 8 |
| <u>Packing group:</u> | III |
| Hazard label: | 8 |
| Classification Code: | C1 |
| Special Provisions: | 274 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |

Marine transport (IMDG)

| | |
|---|---|
| <u>UN number or ID number:</u> | UN 3264 |
| <u>UN proper shipping name:</u> | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| <u>Transport hazard class(es):</u> | 8 |
| <u>Packing group:</u> | III |
| Hazard label: | 8 |
| Special Provisions: | 223 274 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |
| EmS: | F-A, S-B |
| Segregation group: | 1 - acids |

Air transport (ICAO-TI/IATA-DGR)

| | |
|---|---|
| <u>UN number or ID number:</u> | UN 3264 |
| <u>UN proper shipping name:</u> | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) |
| <u>Transport hazard class(es):</u> | 8 |
| <u>Packing group:</u> | III |
| Hazard label: | 8 |
| Special Provisions: | A3 A803 |
| Limited quantity Passenger: | 1 L |
| Passenger LQ: | Y841 |
| Excepted quantity: | E1 |
| IATA-packing instructions - Passenger: | 852 |
| IATA-max. quantity - Passenger: | 5 L |

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 11 of 12

IATA-packing instructions - Cargo: 856
 IATA-max. quantity - Cargo: 60 L

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

15. Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

Marketing and use of explosives precursors:

Acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

National regulatory information

Employment restrictions: Observe employment restrictions for young people.

Water hazard class (D): 1 - slightly hazardous to water

16. Other information

Abbreviations and acronyms

- Ox. Liq. 3: Oxidizing liquids
- Met. Corr. 1: Corrosive to metals
- Acute Tox. 3: Acute toxicity
- Skin Corr. 1A: Skin corrosion
- Skin Corr. 1B: Skin corrosion
- Eye Dam. 1: Eye damage

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008

| Classification | Classification procedure |
|---------------------|--------------------------|
| Met. Corr. 1; H290 | On basis of test data |
| Skin Corr. 1B; H314 | Calculation method |
| Eye Dam. 1; H318 | Calculation method |

Relevant H statements (full text)

- H272 May intensify fire; oxidizer
- H290 May be corrosive to metals
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H331 Toxic if inhaled
- EUH071 Corrosive to the respiratory tract.

Other data

Provide appropriate information, instructions and training to users.
 The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.
 The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.
 The receiver of our product is singularly responsible for adhering to existing laws and regulations.

PlasmaCAL custom calibration standard for ICP-AES and ICP-MS

Revision date: 01/11/2024

Product code: AC18.08234

Page 12 of 12

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)