

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 1 of 13

1. Identification
Product identifier

Plasma CAL – Custom Standard

Relevant identified uses of the substance or mixture and uses advised against
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 telephone number:

+1 703-741-5970 (CHEMTREC)

Further Information

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

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 2 of 13

2. Hazard identification

Classification of the substance or mixture

Regulation (EC) No 1272/2008

Met. Corr. 1; H290
 Skin Irrit. 2; H315
 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
 Calcium nitrate tetrahydrate

Signal word: Danger

Pictograms:



Hazard statements

H290 May be corrosive to metals.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.

Precautionary statements

P280 Wear protective gloves/protective clothing and eye protection/face protection.
 P302+P352 IF ON SKIN: Wash with plenty of 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.
 P390 Absorb spillage to prevent material damage.

Other hazards

No data available

3. Composition/information on ingredients

Mixtures

Chemical characterization

Mixtures in aqueous solution

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 3 of 13

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7697-37-2	nitric acid			1 - < 5 %
	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			
13477-34-4	Calcium nitrate tetrahydrate			1 - < 5 %
	233-332-1		01-2119495093-35	
	Ox. Sol. 3, Acute Tox. 4, Eye Dam. 1; H272 H302 H318			

Full text of H statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7697-37-2	231-714-2	nitric acid	1 - < 5 %
	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		
13477-34-4	233-332-1	Calcium nitrate tetrahydrate	1 - < 5 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 300 - < 2000 mg/kg		

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

No data available

After inhalation

Provide fresh air.
Call a doctor if you feel unwell.

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, whether acute or delayed

Irritant
Cough

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 4 of 13

Dyspnoea
 Vomiting
 Methaemoglobinaemia
 Risk of serious damage to eyes.

Indication of 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

Specific hazards arising from the hazardous product

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

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/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: 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).

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 5 of 13

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/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

7. Handling and storage

Precautions for safe handling

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 vapour/aerosol.

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 vapour/aerosol.

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

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 6 of 13

Exposure limits (ACGIH)

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

DNEL/DMEL values

CAS No	Chemical name	Exposure route	Effect	Value
13477-34-4	Calcium nitrate tetrahydrate			
Consumer DNEL, acute		oral	systemic	10 mg/kg bw/day

PNEC values

CAS No	Chemical name	Value
13477-34-4	Calcium nitrate tetrahydrate	
Micro-organisms in sewage treatment plants (STP)		18 mg/l

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.

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 protective agents must 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.

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 7 of 13

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

Physical state:	Liquid	
Colour:	clear	
Odour:	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 explosive limits:		No data available
Upper explosive 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):		<3
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
Vapour pressure:		No data available
Vapour pressure:		No data available
Density (at 22 °C):		1,051 g/cm ³
Relative density:		No data available
Bulk density:		No data available
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:	

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 8 of 13

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: Firefighting measures

Further information

No data available

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) > 5000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 50 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Route of exposure	Dose	Species	Source	Method
7697-37-2	nitric acid				
	inhalation vapour	ATE 2,65 mg/l			
13477-34-4	Calcium nitrate tetrahydrate				
	oral	LD50 > 300 - < 2000 mg/kg	Rat	Study report (2010)	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2007)	OECD Guideline 402

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 9 of 13

Irritation and corrosivity

Skin corrosion/irritation: Causes skin irritation.
 Serious eye damage/eye irritation: Causes serious eye damage.
 Following ingestion Gastric perforation
 Irritating to respiratory system.
 Pulmonary oedema
 Mucous membrane irritation 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.

STOT-single exposure

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

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.

Information on likely routes of exposure

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.

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.

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 10 of 13

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7697-37-2	nitric acid					
	Acute fish toxicity	LC50 1559 mg/l	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
13477-34-4	Calcium nitrate tetrahydrate					
	Acute fish toxicity	LC50 1378 mg/l	96 h	Poecilia reticulata	Water res. 11(10):927-935 (1977)	OECD Guideline 203
	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

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.

Contaminated packaging

- Handle contaminated packages in the same way as the substance itself.
- Waste codes/waste designations according to EWC/AVV

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 11 of 13

14. Transport information

Land transport (ADR/RID)

UN number or ID number: UN 3264
United Nations proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)
Transport hazard class(es): 8
Packing group: 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)

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

Marine transport (IMDG)

UN number or ID number: UN 3264
United Nations proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)
Transport hazard class(es): 8
Packing group: 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)

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

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 12 of 13

IATA-max. quantity - Passenger:	5 L
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

Ox. Sol. 3: Oxidizing solids

Met. Corr. 1: Corrosive to metals

Acute Tox. 3: Acute toxicity

Acute Tox. 4: Acute toxicity

Skin Corr. 1A: Skin corrosion

Skin Irrit. 2: Skin irritation

Eye Dam. 1: Serious 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 Irrit. 2; H315	Calculation method
Eye Dam. 1; H318	Calculation method

Relevant H statements (number and full text)

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
EUH071	Corrosive to the respiratory tract.

Further Information

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

Plasma CAL – Custom Standard

Revision: 29.01.2024

Product code: AC18.09108

Page 13 of 13

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.

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