1. Identification

Product identifier

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

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.

2. Hazard identification

Classification of the substance or mixture

Regulation (EC) No 1272/2008

Met. Corr. 1; H290
Carc. 2; H351
Skin Corr. 1B; H314
Eye Dam. 1; H318
Skin Sens. 1; H317
STOT RE 2; H373

Full text of hazard statements: see SECTION 16.

Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

nitric acid
nickel

Signal word: Danger

Pictograms:

Hazard statements

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
EUH071	Corrosive to the respiratory tract.

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/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.

Other hazards

No data available

3. Composition/information on ingredients

Mixtures

Chemical characterization

Mixtures in aqueous solution

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7697-37-2	nitric acid			10 - < 15 %
	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			
7440-02-0	nickel			5 - < 10 %
	231-111-4	028-002-00-7		
	Flam. Sol. 2, Carc. 2, Skin Sens. 1, STOT RE 1, Aquatic Chronic 3; H228 H351 H317 H372 H412			

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	10 - < 15 %
	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, whether acute or delayed

Causes burns.
Irritant
Cough
Dyspnoea

Vomiting
Methaemoglobinaemia
Risk of serious damage to eyes.
Allergic reactions

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)
Metal oxide smoke, toxic

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.
Do not breathe vapour/aerosol.

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).

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. Use extractor hood (laboratory).

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

Exposure limits (ACGIH)

CAS No	Chemical name	ppm	mg/m³		Category	Origin
7440-02-0	Nickel elemental (inhalable fraction)		1.5		TWA (8 h)	ACGIH-2025
7697-37-2	Nitric acid	2	5.2		TWA (8 h)	ACGIH-2025
		4	10		STEL (15 min)	ACGIH-2025

Biological limit values

CAS No	Chemical name	Parameter	Value	Test material	Sampling time
7440-02-0	NICKEL (ACGIH 2025)	Nickel	5 µg/L	urine	Post-shift at end of workweek

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 entrepeneur 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.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	dark green
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):	<1
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:	1,181 g/cm³
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:	
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

Toxicocinetics, 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	Chemical name				
	Route of exposure	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 irritation in the mouth, throat, esophagus and gastrointestinal tract.
see also Section 4

Sensitizing effects

May cause an allergic skin reaction. (nickel)

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (nickel)
Germ cell mutagenicity: 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
May cause damage to organs through prolonged or repeated exposure. (nickel)

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.

CAS No	Chemical name						
	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 mg/l	> 419	10 d	several benthic diatoms; see results	Marine Biology 43:307-315 (1977)	Ten cultures of benthic diatoms were iso
	Acute bacteria toxicity	EC50 mg/l ( )	> 1000	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.

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)

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
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 27, Entry 40, 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
Flam. Sol. 2: Flammable solids
Acute Tox. 3: Acute toxicity
Skin Corr. 1A: Skin corrosion
Skin Corr. 1B: Skin corrosion
Eye Dam. 1: Serious eye damage
Skin Sens. 1: Skin sensitization
Carc. 2: Carcinogenicity
STOT RE 1: Specific target organ toxicity - repeated exposure
STOT RE 2: Specific target organ toxicity - repeated exposure
Aquatic Chronic 3: Chronic aquatic hazard

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
Carc. 2; H351	Calculation method
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
STOT RE 2; H373	Calculation method

Relevant H statements (number and full text)

H228	Flammable solid.
H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
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 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.)