

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 1 of 11

#### SECTION 1: Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product identifier

Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

##### 1.2. Relevant identified uses of the substance or mixture and uses advised against

###### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

###### Uses advised against

Do not use for private purposes (household).

##### 1.3. Details of the supplier of the safety data sheet

Company name:	AnalytiChem GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
E-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
E-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.de	
Responsible Department:	Abteilung Produktsicherheit	

##### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

##### Further Information

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

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

###### Regulation (EC) No 1272/2008

Skin Irrit. 2; H315

Eye Irrit. 2; H319

Repr. 2; H361

Full text of hazard statements: see SECTION 16.

##### 2.2. Label elements

###### Regulation (EC) No 1272/2008

###### Hazard components for labelling

caesium chloride

Signal word: Warning

###### Pictograms:



###### Hazard statements

H315

Causes skin irritation.

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel  
for flame sp**

Revision date: 25.09.2023

Product code: 25140

Page 2 of 11

H319 Causes serious eye irritation.  
H361 Suspected of damaging fertility or the unborn child.

**Precautionary statements**

P201 Obtain special instructions before use.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P302+P352 IF ON SKIN: Wash with plenty of soap and 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.  
P308+P313 IF exposed or concerned: Get medical advice/attention.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients**

**3.2. Mixtures**

**Chemical characterization**

Mixtures in aqueous solution

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
7784-27-2	Aluminium nitrate-9-hydrate			20 - < 25 %
	236-751-8			
	Ox. Sol. 3, Skin Irrit. 2, Eye Irrit. 2; H272 H315 H319			
7647-17-8	caesium chloride			1 - < 5 %
	231-600-2		01-2119977124-35	
	Repr. 2; H361			

Full text of H and EUH 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		
7647-17-8	231-600-2	caesium chloride	1 - < 5 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = 2500 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).

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**General information**

No data available

**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.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 3 of 11

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.

Call a physician immediately.

#### **4.2. Most important symptoms and effects, both acute and delayed**

Irritant

Methaemoglobinaemia

#### **4.3. Indication of any immediate medical attention and special treatment needed**

No data available

## SECTION 5: Firefighting measures

### **5.1. Extinguishing media**

#### **Suitable extinguishing media**

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

#### **Unsuitable extinguishing media**

no restriction

### **5.2. Special hazards arising from the substance or mixture**

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NO<sub>x</sub>)

Hydrogen chloride (HCl)

### **5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

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.

## SECTION 6: Accidental release measures

### **6.1. Personal precautions, protective equipment and emergency procedures**

#### **For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

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

#### **For emergency responders**

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

### **6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

### **6.3. Methods and material for containment and cleaning up**

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 4 of 11

#### 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.

#### 6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

## SECTION 7: Handling and storage

### 7.1. 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.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Requirements for storage rooms and vessels

- Keep container tightly closed.

#### Further information on storage conditions

- Keep container dry.

### 7.3. Specific end use(s)

- Laboratory chemicals

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 5 of 11

#### DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
7647-17-8	caesium chloride			
Worker DNEL, long-term		inhalation	systemic	1,47 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	4,18 mg/kg bw/day

#### PNEC values

CAS No	Substance	Value
7647-17-8	caesium chloride	
Freshwater		1,25 mg/l
Freshwater (intermittent releases)		0,37 mg/l
Marine water		0,13 mg/l
Freshwater sediment		4,9 mg/kg
Marine sediment		0,49 mg/kg
Micro-organisms in sewage treatment plants (STP)		100,3 mg/l
Soil		0,25 mg/kg

#### 8.2. 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

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Recommended glove articles: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>, <)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel  
for flame sp**

Revision date: 25.09.2023

Product code: 25140

Page 6 of 11

**Skin protection**

Wear suitable protective clothing. Take off immediately all contaminated clothing.  
Wash hands before breaks and after work.

**Respiratory protection**

Respiratory protection necessary at: aerosol or mist formation

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid	
Colour:	clear	
Odour:	odourless	
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:		No data available
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:		1,1387 g/cm <sup>3</sup>
Relative density:		No data available
Bulk density:		No data available
Relative vapour density:		No data available
Particle characteristics:		No data available

**9.2. Other information**

**Information with regard to physical hazard classes**

Explosive properties	
No data available	
Sustaining combustion:	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
-------------------	-------------------

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel  
for flame sp**

Revision date: 25.09.2023

Product code: 25140

Page 7 of 11

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**

No data available

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No data available

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**

No data available

**10.4. Conditions to avoid**

No data available

**10.5. Incompatible materials**

No data available

**10.6. Hazardous decomposition products**

In case of fire may be liberated:

SECTION 5: Firefighting measures

**Further information**

No data available

**SECTION 11: Toxicological information**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Toxicokinetics, metabolism and distribution**

There are no data available on the preparation/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				
	Exposure route	Dose	Species	Source	Method
7647-17-8	caesium chloride				
	oral	LD50 2500 mg/kg	Mouse	Mutation Research, 244, 295-298 (1990)	other: no data
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2012)	OECD Guideline 402

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 8 of 11

#### **Irritation and corrosivity**

- Causes skin irritation.
- Causes serious eye irritation.

#### **Sensitising effects**

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

#### **Carcinogenic/mutagenic/toxic effects for reproduction**

- Suspected of damaging fertility or the unborn child. (caesium chloride)
- Germ cell mutagenicity: Based on available data, the classification criteria are not met.
- Carcinogenicity: 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 preparation/mixture itself.

#### **Specific effects in experiment on an animal**

There are no data available on the preparation/mixture itself.

#### **Additional information on tests**

There are no data available on the preparation/mixture itself.

#### **Practical experience**

There are no data available on the preparation/mixture itself.

#### **11.2. Information on other hazards**

##### **Endocrine disrupting properties**

There are no data available on the preparation/mixture itself.

##### **Other information**

There are no data available on the preparation/mixture itself.

##### **Further information**

There are no data available on the preparation/mixture itself.

### **SECTION 12: Ecological information**

#### **12.1. Toxicity**

There are no data available on the mixture itself.



**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel  
for flame sp**

Revision date: 25.09.2023

Product code: 25140

Page 9 of 11

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
7647-17-8	caesium chloride					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Danio rerio	Study report (2011)	OECD Guideline 203
	Acute algae toxicity	ErC50 133,99 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (2011)	OECD Guideline 201
	Acute crustacea toxicity	EC50 37,4 mg/l	48 h	Daphnia magna	Study report (2012)	OECD Guideline 202
	Fish toxicity	NOEC 43 mg/l	35 d	Danio rerio	Study report (2012)	OECD Guideline 210
	Crustacea toxicity	NOEC 15,8 mg/l	21 d	Daphnia magna	Study report (2012)	OECD Guideline 211
	Acute bacteria toxicity	(EC50 > 1000 mg/l)	3 h	activated sludge, domestic	Study report (2011)	OECD Guideline 209

**12.2. Persistence and degradability**

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

**12.3. Bioaccumulative potential**

There are no data available on the mixture itself.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
7647-17-8	caesium chloride	0,54

**12.4. Mobility in soil**

There are no data available on the mixture itself.

**12.5. Results of PBT and vPvB assessment**

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

**12.6. 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.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations**

**13.1. 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.  
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

**SECTION 14: Transport information**

**Land transport (ADR/RID)**

**14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel for flame sp

Revision date: 25.09.2023

Product code: 25140

Page 10 of 11

- 14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

#### Inland waterways transport (ADN)

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

#### Marine transport (IMDG)

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

#### Air transport (ICAO-TI/IATA-DGR)

- 14.1. UN number or ID number:** No dangerous good in sense of this transport regulation.  
**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.  
**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.  
**14.4. Packing group:** No dangerous good in sense of this transport regulation.

#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

#### 14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

#### 14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

## SECTION 15: Regulatory information

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

#### EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

#### National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

Water hazard class (D):

1 - slightly hazardous to water

## SECTION 16: Other information

#### Changes

This data sheet contains changes from the previous version in section(s): 12.

#### Abbreviations and acronyms

Ox. Sol: Oxidising solid

Skin Irrit: Skin irritation

Eye Irrit: Eye irritation

Repr: Reproductive toxicity

**Safety Data Sheet**

according to Regulation (EC) No 1907/2006

**Cesium chloride-aluminium nitrate-buffer solution according to Schuhknecht and Schinkel  
for flame sp**

Revision date: 25.09.2023

Product code: 25140

Page 11 of 11

**Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]**

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Repr. 2; H361	Calculation method

**Relevant H and EUH statements (number and full text)**

H272	May intensify fire; oxidiser.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.

**Further Information**

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 hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*