

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 1 of 10

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

1.1. Product identifier

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

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

Carc. 1B; H350i

Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

cobalt dinitrate

Signal word: Danger

Pictograms:



Hazard statements

H350i

May cause cancer by inhalation.

H412

Harmful to aquatic life with long lasting effects.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 2 of 10

Precautionary statements

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P405 Store locked up.

Special labelling of certain mixtures

- EUH208 Contains cobalt dinitrate. May produce an allergic reaction.
Restricted to professional users.

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) | | | |
| 7697-37-2 | nitric acid | | | < 1 % |
| | 231-714-2 | 007-030-00-3 | 01-2119487297-23 | |
| | Ox. Liq. 3, Met. Corr. 1, Acute Tox. 3, Skin Corr. 1A; H272 H290 H331 H314 EUH071 | | | |
| 10141-05-6 | cobalt dinitrate | | | < 1 % |
| | 233-402-1 | 027-009-00-2 | | |
| | Carc. 1B, Muta. 2, Repr. 1B, Resp. Sens. 1, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 1; H350i H341 H360F H334 H317 H400 H410 | | | |

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 | |
| 7697-37-2 | 231-714-2 | nitric acid | < 1 % |
| | | 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 | |
| 10141-05-6 | 233-402-1 | cobalt dinitrate | < 1 % |
| | | Carc. 1B; H350i: >= 0,01 - 100 Aquatic Acute 1; H400: M=10 Aquatic Chronic 1; H410: M=10 | |

Further Information

This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: cobalt dinitrate

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Self-protection of the first aider

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 3 of 10

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.
Call a physician immediately.

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

Allergic reactions

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_x)
Metal oxide smoke, toxic

5.3. Advice for firefighters

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.

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 4 of 10

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. 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.

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

Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Store in a well-ventilated place.

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

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 5 of 10

Occupational exposure limits

| CAS No | Substance | ppm | mg/m ³ | fib/cm ³ | Category | Origin |
|-----------|-------------|-----|-------------------|---------------------|---------------|--------|
| 7697-37-2 | Nitric acid | 1 | 2.6 | | STEL (15 min) | |

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 With specification (test according to EN374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatrill® 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 Dermatrill® L

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

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).

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:

colourless

Odour:

odourless

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 6 of 10

| | |
|--|-------------------|
| 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: | No data available |
| Solubility in other solvents | |
| No data available | |
| Partition coefficient n-octanol/water: | No data available |
| Vapour pressure: | No data available |
| Vapour pressure: | No data available |
| Density: | No data available |
| Bulk density: | No data available |
| Relative vapour density: | 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 | |
| No data available | |

Other safety characteristics

| | |
|--------------------------|-------------------|
| Evaporation rate: | No data available |
| Solvent separation test: | No data available |
| Solvent content: | No data available |
| Solid content: | No data available |
| 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

No data available

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Metal

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 7 of 10

10.6. Hazardous decomposition products

In case of fire may be liberated:
Nitrogen oxides (NO_x)
Metal oxide smoke, toxic

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

Avoid exposure - obtain special instructions before use.

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 |
| 7697-37-2 | nitric acid | | | | |
| | inhalation vapour | ATE 2,65 mg/l | | | |

Irritation and corrosivity

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

Sensitising effects

Contains cobalt dinitrate. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

May cause cancer by inhalation. (cobalt dinitrate)
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

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

Aspiration hazard

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

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

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

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 8 of 10

12.1. Toxicity

There are no data available on the mixture itself.

| 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 | > 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 mg/l) | > 1000 | 3 h | Activated sludge | Study report (2008) OECD Guideline 209 |

12.2. Persistence and degradability

There are no data available on the mixture itself.

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

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 mix with other wastes.

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.
Dispose of waste according to "Kreislaufwirtschafts- und Abfallgesetz (KrW-/AbfG)".

SECTION 14: Transport information

Land transport (ADR/RID)

- 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.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 9 of 10

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

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):

cobalt dinitrate

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 28, Entry 75

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Marketing and use of explosives precursors (Regulation (EU) 2019/1148):

This product is regulated 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 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):

2 - obviously hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 9,12.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

IC cation standard cobalt 1.000 g Co/l Co in nitric acid 0.1 % traceable to NIST

Revision date: 26.09.2023

Product code: 21532

Page 10 of 10

Abbreviations and acronyms

- Ox. Liq: Oxidising liquid
- Met. Corr: Substance or mixture corrosive to metals
- Acute Tox: Acute toxicity
- Skin Corr: Skin corrosion
- Resp. Sens: Respiratory sensitisation
- Skin Sens: Skin sensitisation
- Muta: Germ cell mutagenicity
- Carc: Carcinogenicity
- Repr: Reproductive toxicity
- Aquatic Acute: Acute aquatic hazard
- Aquatic Chronic: Chronic aquatic hazard

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

| Classification | Classification procedure |
|-------------------------|--------------------------|
| Carc. 1B; H350i | Calculation method |
| Aquatic Chronic 3; H412 | Calculation method |

Relevant H and EUH statements (number and full text)

- H272 May intensify fire; oxidiser.
- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H331 Toxic if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H341 Suspected of causing genetic defects.
- H350i May cause cancer by inhalation.
- H360F May damage fertility.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.
- EUH071 Corrosive to the respiratory tract.
- EUH208 Contains cobalt dinitrate. May produce an allergic reaction.

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.)