

**Safety Data Sheet (SDS)**

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 06/03/2015

Reviewed on 06/03/2015

**\* 1 Identification**

- **Product identifier**
- **Trade name:** Cadmium ISE Standard Solution
- **Product number:** SD0CD1 - xx, or SD0CD2 - xx
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Product description:** 0.1 M as Cd<sup>2+</sup>, or 1000 ppm as Cd<sup>2+</sup> Solution
- **Application of the substance / the mixture** Buffers, Filling & Calibration Solutions
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Analytical Sensors & Instruments, Ltd.  
12800 Park One Drive  
Sugar Land TX, 77478  
www.asi-sensors.com
- **Emergency telephone number:** Bill Boyne 281-565-8818 x 133

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS08 Health hazard

Carc. 1A                      H350 May cause cancer.



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS08    GHS09

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Cadmium Nitrate
- **Hazard statements**  
May cause cancer.  
Toxic to aquatic life with long lasting effects.
- **Precautionary statements**  
Wear protective gloves/protective clothing/eye protection/face protection.  
Avoid release to the environment.  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
IF exposed or concerned: Get medical advice/attention.  
Collect spillage.  
Store locked up.

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Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Unknown acute toxicity:**  
3.1 percent of the mixture consists of ingredient(s) of unknown toxicity.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMS-ratings (scale 0 - 4)**



- **Hazard(s) not otherwise classified (HNOC):** None known

**\* 3 Composition/information on ingredients**

7732-18-5	water, distilled water, deionized water	90-99%
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- **Chemical characterization: Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

**· Dangerous Components:**

10325-94-7	Cadmium Nitrate ⚠ Carc. 1A, H350; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	2-12%
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**\* 4 First-aid measures**

- **Description of first aid measures**
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.  
In case of unconsciousness, place patient securely on side position for transportation.
- **After skin contact:**  
Generally the product does not irritate the skin.  
Rinse with warm water.  
If skin irritation occurs, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes under running water.  
If eye irritation occurs, consult a doctor.
- **After swallowing:** If swallowed and symptoms occur, consult a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:**  
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

## \* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of the collected material according to regulations.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

## \* 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**  
All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

· <b>Components with occupational exposure limits:</b>	
<b>10325-94-7 Cadmium Nitrate</b>	
PEL	Long-term value: 0.005 mg/m <sup>3</sup> as Cd; see 29 CFR 1910.1027
REL	See Pocket Guide App. A
TLV	Long-term value: 0.01 0.002* mg/m <sup>3</sup> as Cd; *respirable fraction; BEI

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· <b>Ingredients with biological limit values:</b>	
<b>10325-94-7 Cadmium Nitrate</b>	
BEI	5 µg/g creatinine urine not critical Cadmium (background)
	5 µg/L blood not critical Cadmium (background)

· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

Not required.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Select glove material based on penetration times, rates of diffusion and degradation.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Goggles recommended during refilling.

\* **9 Physical and chemical properties**

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:**

Liquid

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· <b>Color:</b>	Clear, colorless
· <b>Odor:</b>	Odorless
· <b>Odor threshold:</b>	Not determined.
· <b>pH-value:</b>	7.0
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Not determined.
<b>Boiling point/Boiling range:</b>	100 °C (212 °F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	
<b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not self-igniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
<b>Lower:</b>	0.0 Vol %
<b>Upper:</b>	0.0 Vol %
· <b>Vapor pressure @ 20 °C (68 °F):</b>	23 hPa (17 mm Hg)
· <b>Density @ 20 °C (68 °F):</b>	1.03 g/cm <sup>3</sup> (8.595 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Water:</b>	90-99 %
<b>Solids content:</b>	2-12 %
· <b>Other information</b>	No further relevant information available.

**\*10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** Strong reducing agents, Phosphorous, Copper and organic materials.
- **Hazardous decomposition products:** Cadmium Oxides and Nitrogen Oxides (NO<sub>x</sub>).

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**Trade name: Cadmium ISE Standard Solution****11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
  - Group 1 - Carcinogenic to humans
  - Group 2A - Probably carcinogenic to humans
  - Group 2B - Possibly carcinogenic to humans
  - Group 3 - Not classifiable as to its carcinogenicity to humans
  - Group 4 - Probably not carcinogenic to humans

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- **NTP (National Toxicology Program)**

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- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

**\* 12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:**
  - Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
  - Water hazard class 3 (Self-assessment): extremely hazardous for water
  - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
  - Danger to drinking water if even extremely small quantities leak into the ground.
  - Poisonous for fish and plankton in water bodies.
  - Toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**\* 13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**
  - Observe all federal, state and local environmental regulations when disposing of this material.
  - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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- **Uncleaned packagings:**
- **Recommendation:**  
Dispose of as unused product.  
Disposal must be made according to official regulations.

**\* 14 Transport information**

- **UN-Number**
  - **DOT, ADR, IMDG, IATA**
  - **UN proper shipping name**
  - **DOT**
  - **ADR**
  - **IMDG**
  - **IATA**
  - **Transport hazard class(es)**
  - **DOT, IMDG, IATA**
- UN3082  
Environmentally hazardous substances, liquid, n.o.s. (Cadmium Nitrate)  
UN3082 Environmentally hazardous substances, liquid, n.o.s. (Cadmium Nitrate)  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cadmium Nitrate), MARINE POLLUTANT  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cadmium Nitrate)



- **Class**
  - **Label**
- 9 Miscellaneous dangerous substances and articles  
9

· **ADR**

- **Class**
  - **Label**
  - **Packing group**
  - **DOT, ADR, IMDG, IATA**
  - **Environmental hazards:**
  - **Special marking (ADR):**
  - **Special marking (IATA):**
  - **Special precautions for user**
  - **Danger code (Kemler):**
  - **EMS Number:**
  - **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - **Transport/Additional information:**
  - **DOT**
  - **Quantity limitations**
  - **Remarks:**
- 9 (M6) Miscellaneous dangerous substances and articles  
9  
III  
Product contains environmentally hazardous substances:  
Cadmium Nitrate  
Symbol (fish and tree)  
Symbol (fish and tree)  
Warning: Miscellaneous dangerous substances and articles  
90  
F-A,S-F  
Not applicable.  
On passenger aircraft/rail: No limit  
On cargo aircraft only: No limit  
Special marking with the symbol (fish and tree).

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- **ADR**
- **Excepted quantities (EQ)** Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

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- **IMDG**
- **Limited quantities (LQ)** 5L
- **Excepted quantities (EQ)** Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml
- **UN "Model Regulation":** UN3082, Environmentally hazardous substances, liquid, n.o.s. (Cadmium Nitrate), 9, III

**15 Regulatory information**

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

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

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**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**California Proposition 65****Chemicals known to cause cancer:**

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**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**Carcinogenic categories****EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

**GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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**Trade name: Cadmium ISE Standard Solution****Hazard pictograms**

GHS08 GHS09

**Signal word** Danger**Hazard-determining components of labeling:**

Cadmium Nitrate

**Hazard statements**

May cause cancer.

Toxic to aquatic life with long lasting effects.

**Precautionary statements**

Wear protective gloves/protective clothing/eye protection/face protection.

Avoid release to the environment.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

IF exposed or concerned: Get medical advice/attention.

Collect spillage.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations:**

The product is subject to be classified according with the latest version of the regulations on hazardous substances.

**State Right to Know**

7732-18-5	water, distilled water, deionized water	90-99%
10325-94-7	Cadmium Nitrate Carc. 1A, H350;  Aquatic Acute 1, H400; Aquatic Chronic 1, H410;  Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	2-12%

All ingredients are listed.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

**Date of preparation / last revision** 06/03/2015 / -**Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

Acute Tox. 4: Acute toxicity, Hazard Category 4

Carc. 1A: Carcinogenicity, Hazard Category 1A

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Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· **\* Data compared to the previous version altered.**

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