



# Agilent Technologies

**Kit Name:** 2-AB Labeling Kit

**Kit PN:** GKK-404

This product is a multi-level kit, composed of the following modules and individual chemical components:

## Kit Components

| Kit Component Part Number | Kit Component Name                | Qty     |
|---------------------------|-----------------------------------|---------|
| WS0024                    | Vial A (2-AB Dye), 5 mg           | 2 Vials |
| WS0025                    | Vial B (DMSO), 350 $\mu$ l        | 2 Vials |
| WS0026                    | Vial C (Acetic Acid), 300 $\mu$ l | 2 Vials |
| WS0027                    | Vial D (Reductant), 6 mg          | 2 Vials |

SDSs for each component follow this cover sheet.

## Transportation Information for the Kit:

Proper Shipping Names:

| DOT                     | IATA/ICAO              | China                  |
|-------------------------|------------------------|------------------------|
| UN3316<br>Chemical Kits | UN3316<br>Chemical Kit | UN3316<br>Chemical Kit |

**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/18/2016

**1 Identification**

- **Product identifier**
- **Product name:** Vial A (2-AB Dye)
- **Product Code:** WS0024
- **CAS Number:**  
88-68-6
- **EC number:**  
201-851-2
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA
- **Issuing Department:** Agilent Quality Assurance
- **Email:** pdl-msds\_author@agilent.com
- **Phone number:** 800-227-9770
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS07

Acute Tox. 4 H302 Harmful if swallowed.  
Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
Skin Sens. 1B H317 May cause an allergic skin reaction.  
STOT SE 3 H335 May cause respiratory irritation.

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



GHS07

- **Signal word** Warning
- **Hazard-determining components of labeling:**  
anthranilamide
- **Hazard statements**  
Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause an allergic skin reaction.

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May cause respiratory irritation.

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves / eye protection / face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Specific treatment (see on this label).

If eye irritation persists: Get medical advice/attention.

Wash contaminated clothing before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

- **Classification system:**

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



Health = 2

Fire = 1

Reactivity = 0

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



Health = 2

Fire = 1

Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

88-68-6 anthranilamide

- **Identification number(s)**

- **EC number:** 201-851-2

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## 4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** Immediately call 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:** Use fire fighting measures that suit the environment.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Advice for firefighters**

· **Protective equipment:** No special measures required.

## 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective gloves / eye protection / face protection.

· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

Substance is not listed.

· **PAC-2:**

Substance is not listed.

· **PAC-3:**

Substance is not listed.

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**Product name:** Vial A (2-AB Dye)

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### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Prevent formation of dust.
- **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:** Keep receptacle tightly sealed.
- **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 item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the remaining constituent has no known exposure limits.  
At this time, the other constituents have no known exposure limits.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
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.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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**Product name:** Vial A (2-AB Dye)

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- Eye protection:



Tightly sealed goggles

### 9 Physical and chemical properties

- Information on basic physical and chemical properties

- General Information

- Appearance:

|                 |                 |
|-----------------|-----------------|
| Form:           | Powder          |
| Color:          | Whitish         |
| Odor:           | Characteristic  |
| Odor threshold: | Not determined. |

- pH-value: Not applicable.

- Change in condition

|                              |                             |
|------------------------------|-----------------------------|
| Melting point/Melting range: | 111-113 °C (231.8-235.4 °F) |
| Boiling point/Boiling range: | Undetermined.               |

- Flash point: 198 °C (388.4 °F)

- Flammability (solid, gaseous): Product is not flammable.

- Decomposition temperature: Not determined.

- Auto igniting: Not determined.

- Danger of explosion: Product does not present an explosion hazard.

- Explosion limits:

|        |                 |
|--------|-----------------|
| Lower: | Not determined. |
| Upper: | Not determined. |

- Vapor pressure: Not applicable.

- Density at 20 °C (68 °F): 1.233 g/cm<sup>3</sup> (10.28939 lbs/gal)

- Relative density: Not determined.

- Vapor density: Not applicable.

- Evaporation rate: Not applicable.

- Solubility in / Miscibility with

|        |            |
|--------|------------|
| Water: | Insoluble. |
|--------|------------|

- Partition coefficient (n-octanol/water): Not determined.

- Viscosity:

|          |                 |
|----------|-----------------|
| Dynamic: | Not applicable. |
|----------|-----------------|

|            |                 |
|------------|-----------------|
| Kinematic: | Not applicable. |
|------------|-----------------|

|              |        |
|--------------|--------|
| VOC content: | 0.00 % |
|--------------|--------|

|                 |         |
|-----------------|---------|
| Solids content: | 100.0 % |
|-----------------|---------|

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· **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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· **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

Not Regulated, De minimis Quantities

- |  |                 |
|--|-----------------|
| · <b>UN-Number</b>   |                 |
| · <b>DOT, ADN, IMDG, IATA</b>  | not regulated   |
| · <b>UN proper shipping name</b>   |                 |
| · <b>DOT, ADN, IMDG, IATA</b>  | not regulated   |
| · <b>Transport hazard class(es)</b>  |                 |
| · <b>DOT, ADN, IMDG, IATA</b>  |                 |
| · <b>Class</b>   | not regulated   |
| · <b>Packing group</b>   |                 |
| · <b>DOT, IMDG, IATA</b>   | not regulated   |
| · <b>Environmental hazards:</b>  | Not applicable. |
| · <b>Special precautions for user</b>  | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>  | not regulated   |

### 15 Regulatory information

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

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

Substance is not listed.

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

Substance is not listed.

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

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

**· Chemicals known to cause developmental toxicity:**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

**· GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

**· Hazard pictograms**


GHS07

**· Signal word** Warning

**· Hazard-determining components of labeling:**

anthranilamide

**· Hazard statements**

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

**· Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves / eye protection / face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Specific treatment (see on this label).

If eye irritation persists: Get medical advice/attention.

Wash contaminated clothing before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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

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**Product name:** Vial A (2-AB Dye)

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

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

**Abbreviations and acronyms:**

Acute Tox. 4: Acute toxicity – Category 4  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
Skin Sens. 1B: Skin sensitisation – Category 1B  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

US

**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/24/2019

**1 Identification**

- **Product identifier**
- **Product name:** Vial B (DMSO)
- **Product Code:** WS0025
- **CAS Number:**  
67-68-5
- **EC number:**  
200-664-3
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA
- **Email:** pdl-msds\_author@agilent.com
- **Phone number:** 800-227-9770
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**

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



GHS07

- **Signal word** Warning
- **Hazard statements**  
Causes skin irritation.  
Causes serious eye irritation.
- **Precautionary statements**  
Wash thoroughly after handling.  
Wear protective gloves / eye protection / face protection.  
If on skin: Wash with plenty of water.  
Specific treatment (see on this label).  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If skin irritation occurs: Get medical advice/attention.  
Take off contaminated clothing and wash it before reuse.  
If eye irritation persists: Get medical advice/attention.

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US

## Safety Data Sheet acc. to OSHA HCS

Revision Date: 04/24/2019

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**Product name:** Vial B (DMSO)

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 2  
Fire = 1  
Reactivity = 0

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



Health = 2  
Fire = 1  
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
67-68-5 dimethyl sulfoxide
- **Identification number(s)**
- **EC number:** 200-664-3

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult 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.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

US  
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# Safety Data Sheet acc. to OSHA HCS

Revision Date: 04/24/2019

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**Product name:** Vial B (DMSO)

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## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective gloves / eye protection / face protection.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **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.
- **Protective Action Criteria for Chemicals**

|                 |           |
|-----------------|-----------|
| · <b>PAC-1:</b> | 150 ppm   |
| · <b>PAC-2:</b> | 290 ppm   |
| · <b>PAC-3:</b> | 1,800 ppm |

## 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:** Keep receptacle tightly sealed.
- **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 item 7.

### Control parameters

|   |
|---|
| · <b>Components with limit values that require monitoring at the workplace:</b> |
| <b>67-68-5 dimethyl sulfoxide</b>   |
| WEEL   Long-term value: 250 ppm   |

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.

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Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- **Breathing equipment:** Not required.

- **Protection of hands:**



Protective gloves

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

Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.

- **Penetration time of glove material**

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

- **Eye protection:**



Tightly sealed goggles

### 9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

|        |           |
|--------|-----------|
| Form:  | Liquid    |
| Color: | Colorless |

- **Odor:** Odorless

- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Change in condition**

|                              |                    |
|------------------------------|--------------------|
| Melting point/Melting range: | 18.45 °C (65.2 °F) |
| Boiling point/Boiling range: | 189 °C (372.2 °F)  |

- **Flash point:** 95 °C (203 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 270 °C (518 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Not determined.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

|        |           |
|--------|-----------|
| Lower: | 1.8 Vol % |
| Upper: | 63 Vol %  |

- **Vapor pressure at 20 °C (68 °F):** 2.5 hPa (1.9 mm Hg)

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**Product name:** Vial B (DMSO)

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|   |  |
|---|--|
| · <b>Density at 20 °C (68 °F):</b>                | 1.1 g/cm <sup>3</sup> (9.1795 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 Water:</b>  | Fully miscible.                            |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic at 20 °C (68 °F):</b>                  | 198 mPas                                   |
| <b>Kinematic:</b>                                 | Not determined.                            |
| <b>Organic solvents:</b>                          | 100.0 %                                    |
| <b>VOC content:</b>                               | 100.00 %                                   |
| <b>Solids content:</b>                            | 0.0 %                                      |
| · <b>Other information</b>                        | No further relevant information available. |

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

**67-68-5 dimethyl sulfoxide**

|            |          |                       |
|------------|----------|-----------------------|
| Oral       | LD50     | 14,500 mg/kg (rat)    |
| Dermal     | LD50     | >5,000 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 40,250 mg/l (rat)     |

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

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· **OSHA-Ca (Occupational Safety & Health Administration)**  
Substance is not listed.

**12 Ecological information**

· **Toxicity**

· **Aquatic toxicity:**  
**67-68-5 dimethyl sulfoxide**  
EC50 | mg/kg (daphnia)

- **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.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **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:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

Not Regulated, De minimis Quantities

|  |               |
|--|---------------|
| · <b>UN-Number</b><br>· <b>DOT, ADN, IMDG, IATA</b>                                    | not regulated |
| · <b>UN proper shipping name</b><br>· <b>DOT, ADN, IMDG, IATA</b>                      | not regulated |
| · <b>Transport hazard class(es)</b><br>· <b>DOT, ADN, IMDG, IATA</b><br>· <b>Class</b> | not regulated |
| · <b>Packing group</b><br>· <b>DOT, IMDG, IATA</b>                                     | not regulated |

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## Safety Data Sheet acc. to OSHA HCS

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**Product name:** Vial B (DMSO)

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- |  |                 |
|--|-----------------|
| <b>· Environmental hazards:</b>  | Not applicable. |
| <b>· Special precautions for user</b>  | Not applicable. |
| <b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| <b>· UN "Model Regulation":</b>  | not regulated   |

### 15 Regulatory information

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

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

Substance is not listed.

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

Substance is not listed.

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

Substance is listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **Chemicals known to cause developmental toxicity:**

Substance is not listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard statements**  
Causes skin irritation.  
Causes serious eye irritation.

(Contd. on page 8)

- US -

**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/24/2019

**Product name:** Vial B (DMSO)

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**Precautionary statements**

- Wash thoroughly after handling.
- Wear protective gloves / eye protection / face protection.
- If on skin: Wash with plenty of water.
- Specific treatment (see on this label).
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If skin irritation occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- If eye irritation persists: Get medical advice/attention.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

**Abbreviations and acronyms:**

- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

US

**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/24/2019

**1 Identification**

- **Product identifier**
- **Product name:** Vial C (Acetic Acid)
- **Product Code:** WS0026
- **CAS Number:**  
64-19-7
- **EC number:**  
200-580-7
- **Index number:**  
607-002-00-6
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA
- **Email:** pdl-msds\_author@agilent.com
- **Phone number:** 800-227-9770
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H312 Harmful in contact with skin.

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



GHS02



GHS05



GHS07

(Contd. on page 2)

US

**Safety Data Sheet**  
**acc. to OSHA HCS**

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**Product name:** Vial C (Acetic Acid)

(Contd. of page 1)

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
acetic acid
- **Hazard statements**  
Flammable liquid and vapor.  
Harmful in contact with skin.  
Causes severe skin burns and eye damage.
- **Precautionary statements**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting/equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Do not breathe dusts or mists.  
Wash thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a poison center/doctor.  
Specific treatment (see on this label).  
Take off contaminated clothing and wash it before reuse.  
Wash contaminated clothing before reuse.  
In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

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



Health = 3  
Fire = 2  
Reactivity = 0

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



Health = 3  
Fire = 2  
Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
64-19-7 acetic acid

(Contd. on page 3)

US

# Safety Data Sheet acc. to OSHA HCS

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**Product name:** Vial C (Acetic Acid)

(Contd. of page 2)

- **Identification number(s)**
- **EC number:** 200-580-7
- **Index number:** 607-002-00-6

## 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call 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:** CO2, 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.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **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.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

5 ppm

· **PAC-2:**

35 ppm

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**Product name:** Vial C (Acetic Acid)

(Contd. of page 3)

|                 |         |
|-----------------|---------|
| · <b>PAC-3:</b> |         |
|                 | 250 ppm |

**7 Handling and storage**

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **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:** Keep receptacle tightly sealed.
- **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 item 7.
- **Control parameters**

|   |   |
|---|---|
| <b>Components with limit values that require monitoring at the workplace:</b> |   |
| <b>64-19-7 acetic acid</b>  |   |
| PEL   | Long-term value: 25 mg/m <sup>3</sup> , 10 ppm  |
| REL   | Short-term value: 37 mg/m <sup>3</sup> , 15 ppm<br>Long-term value: 25 mg/m <sup>3</sup> , 10 ppm |
| TLV   | Short-term value: 37 mg/m <sup>3</sup> , 15 ppm<br>Long-term value: 25 mg/m <sup>3</sup> , 10 ppm |

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
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.

(Contd. on page 5)

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**Product name:** Vial C (Acetic Acid)

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- Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

**9 Physical and chemical properties**

|   |  |
|---|--|
| · <b>Information on basic physical and chemical properties</b>    |  |
| · <b>General Information</b>                                      |  |
| · <b>Appearance:</b>  |  |
| Form:   | Fluid  |
| Color:  | Colorless  |
| · Odor:   | Pungent  |
| · <b>Odor threshold:</b>  | Not determined.  |
| · <b>pH-value:</b>  | 2.5  |
| · <b>Change in condition</b>                                      |  |
| Melting point/Melting range:                                      | 16.6 °C (61.9 °F)  |
| Boiling point/Boiling range:                                      | 118 °C (244.4 °F)  |
| · <b>Flash point:</b>   | 40 °C (104 °F)   |
| · <b>Flammability (solid, gaseous):</b>                           | Not applicable.  |
| · <b>Ignition temperature:</b>                                    | 485 °C (905 °F)  |
| · <b>Decomposition temperature:</b>                               | Not determined.  |
| · <b>Auto igniting:</b>   | Not determined.  |
| · <b>Danger of explosion:</b>                                     | Product is not explosive. However, formation of explosive air/vapor mixtures are possible. |
| · <b>Explosion limits:</b>  |  |
| Lower:  | 4 Vol %  |
| Upper:  | 17 Vol %   |
| · <b>Vapor pressure at 20 °C (68 °F):</b>                         | 16 hPa (12 mm Hg)  |
| · <b>Density at 20 °C (68 °F):</b>                                | 1.05 g/cm <sup>3</sup> (8.76225 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>                         |  |
| Water:  | Fully miscible.  |
| · <b>Partition coefficient (n-octanol/water):</b> Not determined. |  |

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acc. to OSHA HCS**

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**Product name:** Vial C (Acetic Acid)

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|                                  |  |
|----------------------------------|--|
| · <b>Viscosity:</b>              |  |
| <b>Dynamic at 20 °C (68 °F):</b> | 1.24 mPas                                  |
| <b>Kinematic:</b>                | Not determined.                            |
| <b>Organic solvents:</b>         | 100.0 %                                    |
| <b>VOC content:</b>              | 100.00 %                                   |
| <b>Solids content:</b>           | 0.0 %                                      |
| · <b>Other information</b>       | No further relevant information available. |

**10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**

|   |      |                      |
|---|------|----------------------|
| · <b>LD/LC50 values that are relevant for classification:</b> |      |                      |
| <b>64-19-7 acetic acid</b>                                    |      |                      |
| Oral  | LD50 | 3,310 mg/kg (rat)    |
| Dermal  | LD50 | 1,060 mg/kg (rabbit) |

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

|  |
|--|
| · <b>IARC (International Agency for Research on Cancer)</b>        |
| Substance is not listed.   |
| · <b>NTP (National Toxicology Program)</b>                         |
| Substance is not listed.   |
| · <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b> |
| Substance is not listed.   |

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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# Safety Data Sheet acc. to OSHA HCS

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**Product name:** Vial C (Acetic Acid)

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- **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.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **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:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

Not Regulated, De minimis Quantities

|   |   |
|---|---|
| · <b>UN-Number</b>                          |   |
| · <b>DOT, IMDG, IATA</b>                    | UN2789  |
| · <b>UN proper shipping name</b>            |   |
| · <b>DOT</b>                                | Acetic acid, glacial  |
| · <b>IMDG, IATA</b>                         | ACETIC ACID, GLACIAL  |
| · <b>Transport hazard class(es)</b>         |   |
| · <b>DOT</b>                                |   |
|   |   |
| · <b>Class</b>                              | 8 Corrosive substances  |
| · <b>Label</b>                              | 8, 3  |
| <hr style="border-top: 1px dashed black;"/> |   |
| · <b>IMDG</b>                               |   |
|   |   |
| · <b>Class</b>                              | 8 Corrosive substances  |

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acc. to OSHA HCS**

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Issue Date: 04/24/2019

**Product name:** Vial C (Acetic Acid)

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|   |   |
|---|---|
| · Label   | 8/3   |
| · IATA  |   |
|  |   |
| · Class   | 8 Corrosive substances  |
| · Label   | 8 (3)   |
| · Packing group   |   |
| · DOT, IMDG, IATA   | II  |
| · Environmental hazards:  | Not applicable.   |
| · Special precautions for user  | Warning: Corrosive substances   |
| · Danger code (Kemler):   | 83  |
| · EMS Number:   | 8-04  |
| · Segregation groups  | Acids   |
| · Stowage Category  | A   |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code         | Not applicable.   |
| · Transport/Additional information:   |   |
| · DOT   |   |
| · Quantity limitations  | On passenger aircraft/rail: 1 L<br>On cargo aircraft only: 30 L   |
| · Hazardous substance:  | 5000 lbs, 2270 kg   |
| · IMDG  |   |
| · Limited quantities (LQ)   | 1L  |
| · Excepted quantities (EQ)  | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · UN "Model Regulation":  | UN 2789 ACETIC ACID, GLACIAL, 8 (3), II   |

**15 Regulatory information**

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

|   |                          |
|---|--------------------------|
| · Section 355 (extremely hazardous substances):   | Substance is not listed. |
| · Section 313 (Specific toxic chemical listings): | Substance is not listed. |
| · TSCA (Toxic Substances Control Act):            | Substance is listed.     |
| · Proposition 65                                  |                          |
| · Chemicals known to cause cancer:                | Substance is not listed. |

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**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/24/2019

**Product name:** Vial C (Acetic Acid)

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· **Chemicals known to cause reproductive toxicity for females:**  
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**  
Substance is not listed.

· **Chemicals known to cause developmental toxicity:**  
Substance is not listed.

· **Carcinogenic categories**  
· **EPA (Environmental Protection Agency)**  
Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**  
Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**  
Substance is not listed.

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02    GHS05    GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**  
acetic acid

· **Hazard statements**  
Flammable liquid and vapor.  
Harmful in contact with skin.  
Causes severe skin burns and eye damage.

· **Precautionary statements**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting/equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Do not breathe dusts or mists.  
Wash thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a poison center/doctor.  
Specific treatment (see on this label).  
Take off contaminated clothing and wash it before reuse.  
Wash contaminated clothing before reuse.  
In case of fire: Use for extinction: CO2, powder or water spray.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

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**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 04/24/2019

Issue Date: 04/24/2019

**Product name:** Vial C (Acetic Acid)

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

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

**Abbreviations and acronyms:**

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

US

**Safety Data Sheet  
acc. to OSHA HCS**

Revision Date: 05/07/2019

Issue Date: 04/24/2019

**1 Identification**

- **Product identifier**
- **Product name:** Vial D (Reductant)
- **Product Code:** WS0027
- **CAS Number:**  
25895-60-7
- **EC number:**  
247-317-2
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies  
5301 Stevens Creek Blvd  
Santa Clara, CA 95051, USA
- **Email:** pdl-msds\_author@agilent.com
- **Phone number:** 800-227-9770
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Sol. 1 H228 Flammable solid.

Water-react. 2 H261 In contact with water releases flammable gas.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Revision Date: 05/07/2019

Issue Date: 04/24/2019

**Product name:** Vial D (Reductant)

(Contd. of page 1)

· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labeling:**

sodium cyanborohydride

· **Hazard statements**

Flammable solid.

In contact with water releases flammable gas.

Toxic if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Do not allow contact with water.

Handle under inert gas. Protect from moisture.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a poison center/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a poison center/doctor if you feel unwell.

Take off immediately all contaminated clothing and wash it before reuse.

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

In case of fire: Use for extinction: CO<sub>2</sub>, sand, extinguishing powder.

Store in a dry place. Store in a closed container.

Store in a well-ventilated place. Keep container tightly closed.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 2

Reactivity = 2

The substance demonstrates unusual reactivity with water.

· **HMIS-ratings (scale 0 - 4)**



HEALTH \*3 Health = \*3

FIRE 2 Fire = 2

REACTIVITY 2 Reactivity = 2

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- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
25895-60-7 sodium cyanborohydride
- **Identification number(s)**
- **EC number:** 247-317-2

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Immediately remove any clothing soiled by the product.  
Remove breathing apparatus only after contaminated clothing have been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**  
Supply fresh air or oxygen; call for doctor.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**  
Do not induce vomiting; immediately call for medical help.  
Drink copious amounts of water and provide fresh air. Immediately call 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>, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Do not allow product to reach sewage system or any water course.

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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:**

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

· **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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

Substance is not listed.

· **PAC-2:**

Substance is not listed.

· **PAC-3:**

Substance is not listed.

**7 Handling and storage**

· **Handling:**

· **Precautions for safe handling**

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store in a cool location.

· **Information about storage in one common storage facility:** Do not store together with acids.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· **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 item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:** Not required.

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

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- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.  
 Store protective clothing separately.  
 Avoid contact with the eyes.  
 Avoid contact with the eyes and skin.
- **Breathing equipment:**  
 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.  
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.
- **Penetration time of glove material**  
 The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

**9 Physical and chemical properties**

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

· **General Information**

· **Appearance:**

- **Form:** Powder
- **Color:** Whitish
- **Odor:** Odorless
- **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

- **Melting point/Melting range:** >242 °C (>467.6 °F)
- **Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Highly flammable.  
 Contact with water liberates extremely flammable gases.

· **Decomposition temperature:** Not determined.

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|   |  |
|---|--|
| · <b>Auto igniting:</b>                           | Not determined.                            |
| · <b>Danger of explosion:</b>                     | Not determined.                            |
| · <b>Explosion limits:</b>                        |  |
| Lower:  | Not determined.                            |
| Upper:  | Not determined.                            |
| · <b>Vapor pressure:</b>                          | Not applicable.                            |
| · <b>Density at 20 °C (68 °F):</b>                | 1.12 g/cm <sup>3</sup> (9.3464 lbs/gal)    |
| · <b>Relative density</b>                         | Not determined.                            |
| · <b>Vapor density</b>                            | Not applicable.                            |
| · <b>Evaporation rate</b>                         | Not applicable.                            |
| · <b>Solubility in / Miscibility with Water:</b>  | Insoluble.                                 |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                               |  |
| Dynamic:  | Not applicable.                            |
| Kinematic:  | Not applicable.                            |
| VOC content:                                      | 0.00 %                                     |
| Solids content:                                   | 100.0 %                                    |
| · <b>Other information</b>                        | No further relevant information available. |

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Contact with water releases flammable gases.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**  
Strong caustic effect.  
Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

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· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **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:** Very toxic for fish

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very 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:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

Not Regulated, De minimis Quantities

· **UN-Number**

· **DOT, IMDG, IATA**

UN3134

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|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>IMDG, IATA</b></li> </ul>                     | <p>Water-reactive solid, toxic, n.o.s. (sodium cyanborohydride)<br/>WATER-REACTIVE SOLID, TOXIC, N.O.S. (sodium cyanborohydride)</p> |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>   |  |
|    |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>  | <p>4.3 Substances which, in contact with water, emit flammable gases<br/>4.3, 6.1</p>  |
| <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> </ul>   |  |
|    |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>  | <p>4.3 Substances which, in contact with water, emit flammable gases<br/>4.3/6.1</p>   |
| <ul style="list-style-type: none"> <li>· <b>IATA</b></li> </ul>   |  |
|    |  |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>  | <p>6.1 Toxic substances<br/>4.3 (6.1)</p>  |
| <ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, IMDG, IATA</b></li> </ul>  | <p>II</p>  |
| <ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> </ul>   | <p>Not applicable.</p>   |
| <ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>EMS Number:</b></li> </ul>                                     | <p>Warning: Substances which, in contact with water, emit flammable gases<br/>F-G,S-N</p>  |
| <ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b></li> </ul>                        | <p>Not applicable.</p>   |
| <ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> <li>· <b>DOT</b></li> <li>· <b>Quantity limitations</b></li> </ul> | <p>On passenger aircraft/rail: 1 kg<br/>On cargo aircraft only: 15 kg</p>  |
| <ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul>      | <p>1 kg<br/>Code: 30 g</p>   |

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· **UN "Model Regulation":** UN 3134 WATER-REACTIVE SOLID, TOXIC, N.O.S. (SODIUM CYANBOROHYDRIDE), 4.3 (6.1), II, ENVIRONMENTALLY HAZARDOUS

**15 Regulatory information**

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

· **Section 355 (extremely hazardous substances):**  
Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**  
Substance is not listed.

· **TSCA (Toxic Substances Control Act):**  
Substance is listed.

· **TSCA new (21st Century Act): (Substances not listed)**  
25895-60-7 | sodium cyanborohydride

· **Proposition 65**

· **Chemicals known to cause cancer:**  
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**  
Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**  
Substance is not listed.

· **Chemicals known to cause developmental toxicity:**  
Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**  
I (oral)

· **TLV (Threshold Limit Value established by ACGIH)**  
Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**  
Substance is not listed.

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



· **Signal word** Danger

· **Hazard-determining components of labeling:**  
sodium cyanborohydride

· **Hazard statements**  
Flammable solid.  
In contact with water releases flammable gas.

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Toxic if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Do not allow contact with water.

Handle under inert gas. Protect from moisture.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

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

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a poison center/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a poison center/doctor if you feel unwell.

Take off immediately all contaminated clothing and wash it before reuse.

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

In case of fire: Use for extinction: CO<sub>2</sub>, sand, extinguishing powder.

Store in a dry place. Store in a closed container.

Store in a well-ventilated place. Keep container tightly closed.

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Abbreviations and acronyms:**

Flam. Sol. 1: Flammable solids – Category 1

Water-react. 2: Substances and mixtures which in contact with water emit flammable gases – Category 2

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1