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Version 1.0

Previous Date of Issue: 08/30/18

Previous Version: N/A

## Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

### 1.1 Product Identifier

Substance Name/Product Name: DAB Peroxidase Substrate Kit – DAB (3,3'-diaminobenzidine) Reagent 2  
Product Identifier/Catalog No.: SK-4100  
CAS Number: Not Applicable/Chemical Mixture  
EC Number: Not Applicable/Chemical Mixture  
REACH Registration Number: Not Applicable/Chemical Mixture

### 1.2 Relevant identified uses and uses advised against

Relevant identified uses: Research Grade Use Only, For professional Users Only  
Uses advised against: None  
Reason why uses advised against: Not Applicable

### 1.3 Details of Safety Data Sheet Supplier

Manufacturer/Supplier USA:

Vector Laboratories, Inc.

30 Ingold Road

Burlingame, CA 94010

United States

Tel: (650) 697-3600 Fax: (650) 697-0339

Email: vector@vectorlabs.com

Supplier United Kingdom:

Vector Laboratories Ltd.

3 Accent Park

Bakewell Road, Orton Southgate

Peterborough, PE2 6XS, United Kingdom

Tel: (01733) 237999 Fax: (01733) 237119

Email: vector@vectorlabs.co.uk

### 1.4 Emergency Telephone Number

**Emergency Telephone Number: (650) 697-0339**

Opening hours: 5 Days a Week – 9 am to 4 pm PST/PDT

Other comments: Language English

ECHA National Helpdesks Link to Safety Data Sheet - National Emergency Telephone Number, if applicable:

[http://echa.europa.eu/help/nationalhelp\\_contact\\_en.asp](http://echa.europa.eu/help/nationalhelp_contact_en.asp)

## Section 2. Hazards Identification

### 2.1 Classification of the substance or mixture

#### 2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP) and 29 CFR 1910.1200 (OSHA HCS)

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 4), H302

Eye irritation (Category 2A), H319

Germ Cell Mutagenicity (Category 2), H341

Carcinogenicity (Category 1A), H350

#### 2.1.2 Additional Information:

EU Hazard-statements: See Section 16

### 2.2 Label Elements and Precautionary Statements

GHS Label:



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Signal Word: Danger

#### Hazard Statement(s):

H225 Highly flammable liquid and vapor  
H302 Harmful if swallowed  
H319 Causes serious eye damage  
H341 Suspected of causing genetic defects  
H350 May cause cancer

#### Precautionary Statement(s):

##### Prevention:

P201 Obtain special instructions before use  
P202 Do not handle until all safety precautions have been read and understood  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
P233 Keep container tightly closed  
P240 Ground/bond container and receiving equipment  
P241 Use explosion-proof electrical/ventilating/lighting/.../equipment  
P242 Use only non-sparking tools  
P243 Take precautionary measures against static discharge  
P264 Wash hands thoroughly after handling  
P270 Do not eat, drink or smoke when using this product  
P280 Wear protective gloves/protective clothing/eye protection/face protection  
P281 Use personal protective equipment as required

##### Response:

P301 + P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you well feel unwell  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse SKIN with water/shower  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308 + P313 If exposed or concerned: Get medical advice/attention  
P330 Rinse mouth  
P337 + P313 IF eye irritation persists: Get medical advice/attention  
P370 + P378 In case of fire: Use...for extinction

##### Storage:

P403 + P235 Store in a well-ventilated place. Keep cool  
P405 Store locked up

##### Disposal:

P501 Dispose of contents/container to an approved waste disposal plant

#### Supplemental Hazard information:

Container must be labelled "For Professional Users Only"

#### 2.3 Other Hazards:

Hazards not otherwise classified (HNOC) or not covered by GHS:None

## Section 3. Composition/Information on Ingredients

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### 3.1 Substances / Hazardous Components of Mixture:

Component	Identifier	Classification	% (Weight)
Acetonitrile	CAS # 75-05-8 EC # 200-835-2 Index # 608-001-00-3 Reach Registration # 01-2119471307-38-XXXX	Flammable Liquid (Category 2), H225 Acute Toxicity, Oral (Category 4), H302 Acute toxicity, Dermal (Category 4), H312 Eye Irritation (Category 2A), H319 Acute toxicity, Inhalation (Category 4), H332	≤75%
3,3'-diaminobenzidine	CAS# 7411-49-6 EC # 231-018-9 Index # 612-239-00-3 Reach Registration # N/A	Acute Toxicity, Oral (Category 4), H302 Eye Irritation (Category 2A), H319 Germ Cell Mutagenicity (Category 2), H341 Carcinogenicity (Category 1B), H350	≤15%

## Section 4. First Aid Measures

### 4.1 Description of First Aid Measures

#### General Notes / Advice:

Consult a physician IF Exposed. Provide a copy of this safety data sheet to the doctor in attendance. Move out of dangerous area

#### Following inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician

#### Following skin contact:

Wash skin with soap and plenty of water. Take victim immediately to hospital. Consult a physician

#### Following eye contact:

Rinse thoroughly with plenty of water for 15 minutes and consult a physician

#### Following ingestion:

DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

### 4.2 Most Important Symptoms and Effects, Both Acute and Delayed

See Section 2 or Section 11

Acetonitrile - RTECS: AL7700000

- Headache, Dizziness, nausea, vomiting, diarrhea, rash, depression, drowsiness, impaired judgement, lack of coordination, cyanosis, death

Biphenyl-3,3',4,4'-tetrayltetraamine - RTECS: DV8750000

### 4.3 Indication or any Immediate Medical Attention and Special Treatment Needed

No data available

## Section 5. Fire Fighting Measures

### 5.1 Extinguishing Media

#### Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemicals or carbon dioxide

#### Unsuitable extinguishing media:

No data available

### 5.2 Special hazards arising from substances or mixtures

#### Hazardous combustion products:

No data available

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## 5.3 Advice for Firefighters

Protective actions:

Keep containers cool with water spray

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary

## 5.1 Further Information

**Use water spray to cool containers**

## Section 6. Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

#### 6.1.1 For non-emergency personnel

**Protective Equipment:**

Use personal protective equipment. Avoid breathing vapors. Ensure adequate ventilation. Remove all ignition sources. Accumulating vapors may form explosive concentration. For information on personal protection see section 8

**Emergency Procedures:**

Evacuate personnel to safe areas

#### 6.1.2 For emergency responders:

Use personal protective equipment to prevent contact with eyes and skin. Ensure adequate ventilation. Avoid breathing vapors. For information on personal protection see section 8

### 6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided

### 6.3 Methods and Materials for Containment and Cleaning up

Contain spillage, and then collect with non-combustible absorbent material and place in container for disposal according to local regulations

#### 6.3.1 For containment:

Dam and absorb spills. Ensure adequate ventilation to prevent vapor accumulations

#### 6.3.2 For cleaning up:

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Materials used to clean-up spills can cause a fire. Ensure adequate ventilation to prevent vapor accumulations

#### 6.3.3 Other information:

No data available

### 6.4 Reference to other Sections

See Sections 8 and Section 13 for additional information

## Section 7. Handling and Storage

### 7.1 Precautions for Safe Handling

In accordance with Article 5 of Directive 98/24/EC and Article 5 of Directive 2004/37/EC

**Protective Measures:**

Avoid contact with skin and eyes. Avoid inhalation of vapor and mist. Wash hands following use and prior to eating. Handle in accordance with good industrial hygiene and safety practice

**Measures to prevent fire:**

See Section 5. Keep away from ignition sources. Ensure adequate ventilation to prevent accumulation of vapors. Take precautionary measures against static discharge

**Measures to prevent aerosol and dust generation:**

Not applicable

**Measures to prevent handling of incompatible substances or mixtures:**

See Section 6 and Section 10. Avoid uncontrolled release to the environment

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**Measures to protect the environment:**

See Section 6. Avoid uncontrolled release to the environment

**Advice on general occupational hygiene:**

See Section 8. Avoid contact with skin and eyes. Wash hands following use and prior to eating. Handle in accordance with good industrial hygiene and safety practice

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

**Technical measures and storage conditions:**

Keep container tightly closed and store according to product label. Containers which are opened must be carefully resealed and kept upright to prevent leakage

**Packaging materials:**

No data available

**Requirements for storage rooms and vessels:**

Store in a cool and well-ventilated place

Further information on storage conditions: No data available

**7.3 Specific End Use(s)**

**Recommendations:**

See Section 1.2

**Industrial sector specific solutions:**

Not data available

## Section 8. Exposure Controls/Personal Protection

In accordance with Directive 98/24/EC, Article 2(3) of Commission Decision 2014/113/EU, Directive 2004/37/EU, USA OSHA, and California Code of Regulations - Table AC-1

**8.1 Control Parameters**

**Components with Workplace Control Parameters:**

Substance	Acetonitrile			
	CAS No. 75-05-8			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
<a href="#">Australia</a>	40	67	60	101
<a href="#">Austria</a>	40	70	160	280
<a href="#">Belgium</a>	20	34		
<a href="#">Canada - Ontario</a>	20	10		
<a href="#">Canada - Québec</a>	40	67	60	101
<a href="#">Denmark</a>	40	70	80	140
<a href="#">European Union</a>	<b>40</b>	<b>70</b>		
<a href="#">Finland</a>	20	34	40(1)	68(1)
<a href="#">France</a>	<b>40</b>	<b>17</b>	20(1)	34(1)
<a href="#">Germany (AGS)</a>	20	34	40(1)	68(1)
<a href="#">Germany (DFG)</a>	10	17	20(1)	34(1)

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<b>Substance</b>	Acetonitrile			
<b>CAS No.</b>	75-05-8			
<u>Hungary</u>		70		280
<u>Ireland</u>	40	70		
<u>Italy</u>	20	35		
<u>Latvia</u>	40	70		
<u>New Zealand</u>	40	67	60	101
<u>People's republic of China</u>		30		
<u>Poland</u>		70		
<u>Romania</u>	40	70		
<u>Singapore</u>	40	67	60	101
<u>South Korea</u>	20	33		
<u>Spain</u>	40	68	60	102
<u>sweden</u>	30	50	60(1)	100(1)
<u>Switzerland</u>	20	34	40	68
<u>The Netherlands</u>		34		
<u>Turkey</u>	40	70		
<u>USA - NIOSH</u>	20	34		
<u>USA - OSHA</u>	40	70		
<u>United Kingdom</u>	40	68	60	102
	<b>Remarks</b>			
European Union	Bold-type: Indicative Occupational Exposure Limit Values and Limit Values for Occupational Exposure Binding Occupational Exposure Limit Value - BOELV ~ (for references see bibliography)			
Finland	(1) 15 minutes average value			
France	Bold type: Restrictive statutory limit values			
Germany (AGS)	(1) 15 minutes average value			
Germany (DFG)	(1) 15 minutes average value			
Italy	Skin			
Spain	Skin			
Sweden	(1) 15 minutes average value			

### Components with Derived No-Effect Levels (DNELs):

Vector Laboratories does not manufacture the components in this mixture. Information provided is based on available lists (GESTIS DNEL List) and/or manufacturer data

#### Workers- Acetonitrile

Routes of Exposure	Short-term local	Short-term systemic	Long-term local	Long-term systemic
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Oral	(iii)	(iii)	(iii)	(iii)
Inhalation	68 mg/m <sup>3</sup>	68 mg/m <sup>3</sup>	68 mg/m <sup>3</sup>	68 mg/m <sup>3</sup>
Dermal	(iii)	(iii)	(iii)	32.2 mg/kg BW/day

Note: (i) hazard identified but no DNEL available, (ii) no exposure expected, (iii) no hazard identified

### Components with Predicted No-Effect Concentration (PNEC):

Vector Laboratories does not manufacturer the components in this mixture. Information provided is based on available lists and/or manufacturer data

#### PNEC - Acetonitrile

Environmental Protection Target	PNEC Value
PNEC aquatic, freshwater	10 mg/L
PNEC sediment, freshwater	7.53 mg/kg
PNEC aquatic, marine water	1 mg/L
PNEC sediment, marine water	No exposure expected
PNEC sewage treatment plant	32 mg/L
PNEC soil (agricultural)	2.41 mg/kg
PNEC, air	Not Available

## 8.2 Exposure Controls

### 8.2.1 Appropriate Engineering Controls:

Based on exposure risk assessments, use enclosures, local exhaust ventilation or other engineering controls to minimize worker exposures

### 8.2.2 Personal Protective Equipment

#### 8.2.2.1 Eye and Face Protection:

Face shield and safety glasses. Use equipment for eye protection that is tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

#### 8.2.2.2 Skin Protection:

##### Hand protection:

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. The type of protective gloves must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wash and dry hands following use

Full contact: Acetonitrile

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 897 / Aldrich Z67647, Size M)

Splash contact: Acetonitrile

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 897 / Aldrich Z67647, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario

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### Other skin protection:

The type of protective equipment required such as impervious clothing, flame retardant antistatic protective clothing, boots shall be selected based on the concentration and amount of the dangerous substance at the specific workplace

### 8.2.2.3 Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

### 8.2.2.4 Thermal Hazards:

No data available

### 8.2.3 Control of Environmental Exposure:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

## Section 9. Physical and Chemical Properties

### According to Article 8(2) of Regulation (EC) No 1272/2008, where applicable

Appearance: Clear Liquid	Flash Point: 2.0 °C (35.6 °F) - closed cup
Odor: ether-like	Decomposition temperature: Not determined
pH: Not determined	Vapor pressure: 121.44 hPa (91.09 mmHg) at 25 °C
Boiling point: 81 - 82 °C (178 - 180 °F)	Relative density: 0.786 g/mL at 25 °C (77 °F)
Melting point: -48 °C (-54 °F)	Solubility: Not determined
Viscosity: Not determined	Upper Explosive Limit: Not determined
Evaporation rate: Not determined	Lower Explosive Limit: Not determined
Odor Threshold: Not determined	Flammability: Yes
Freezing point: Not determined	Vapor Density: Not determined
Auto-ignition temperature: Not determined	Partition Coefficient: Not determined

## Section 10. Stability and Reactivity

### 10.1 Reactivity:

No data available

### 10.2 Chemical stability:

Stable under recommended storage conditions

### 10.3 Possibility of Hazardous Reactions:

Vapors may form explosive mixture with air

### 10.4 Conditions to avoid:

Heat, sparks and flames

### 10.5 Incompatible Materials:

Acids, bases, nitrating agents, nitrogen-fluorine compounds, oxidizers, perchlorates, sulphites

### 10.6 Hazardous reactions/decomposition products:

Carbon oxides, nitrogen oxides, hydrogen cyanide. See Section 5

## Section 11. Toxicological Information

### 11.1 Information on Toxicological Effects

Acetonitrile - RTECS: AL7700000

- Headache, Dizziness, nausea, vomiting, diarrhea, rash, depression, drowsiness, impaired judgement, lack of coordination, cyanosis, death



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**Acute Toxicity:**

Acetonitrile  
LD50 Oral - Rat - male - 1,320 - 6,690 mg/kg  
LC50 Inhalation - Mouse - 4 h - 3587 ppm  
(OECD Test Guideline 403)  
LC50 Inhalation - Rat - 4 h – 26.8 mg/l  
LD50 Dermal - Rabbit – male and female - >2000 mg/kg  
(OECD Test Guideline 402)  
Biphenyl-3,3',4,4'-tetrayltetraamine  
LD50 Oral – Mouse - 1834 mg/kg

**Skin corrosion/irritation:**

Acetonitrile  
Skin – Rabbit - No skin irritation (OECD Test Guideline 404)

**Serious eye damage/eye irritation:**

Acetonitrile  
Eyes- Rabbit – Irritating to eyes (OECD Test Guideline 405)

**Respiratory or skin sensitization:**

Acetonitrile  
Buehlet test - Guinea pig – Negative (OECD Test Guideline 406)

**Germ cell mutagenicity:**

Acetonitrile  
Hamster – Ovary - Negative  
Mutagenicity (micronucleus test) – Mouse – Positive – some in vivo tests  
Biphenyl-3,3',4,4'-tetrayltetraamine  
In vitro tests showed mutagenic effects – Rat – Liver – Unscheduled DNA Synthesis

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed as human carcinogen by IARC

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA

**Reproductive toxicity:**

No data available

**Specific target organ toxicity - single exposure:**

Not classified as a specific target organ toxicant, single exposure

**Specific target organ toxicity - repeated exposure:**

Not classified as a specific target organ toxicant, repeated exposure

**Aspiration hazard:**

No aspiration toxicity classification

**Additional Information:**

Acetonitrile RTECS: AL7700000

Biphenyl-3,3',4,4'-  
tetrayltetraamine RTECS: DV8750000

## Section 12. Ecological Information

**12.1 Toxicology:**

Acetonitrile  
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 1,640.00 mg/l - 96 h,  
NOEC - Oryzias latipes - 102 mg/l - 21 d

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Toxicity to daphnia and other aquatic invertebrates- EC50 - Daphnia magna (Water flea) - 3,600 mg/l - 48 h (OECD Test Guideline 202), NOEC - Daphnia magna (Water flea) - 160 mg/l - 21 d

## 12.2 Persistence and degradability:

Acetonitrile

Biodegradability Result: 84 % - Readily biodegradable (OECD Test Guideline 301C)

## 12.3 Bioaccumulative potential:

No bioaccumulation is to be expected

## 12.4 Mobility in soil:

Not expected to absorb on soil

## 12.5 PBT and vPvB assessment:

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Other adverse effects:

No data available

## 12.7 Additional Information:

No data available

## Section 13. Disposal Considerations

### 13.1 Waste Treatment Methods:

#### 13.1.1 Product / Packaging Disposal:

##### Product:

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose in a safe manner in accordance per local/national regulations

##### Packaging:

Dispose of as unused product

#### 13.1.2 Waste treatment-relevant information:

No data available

#### 13.1.3 Sewage disposal-relevant information:

Sewage disposal must meet the local and federal regulations

#### 13.1.4 Other disposal recommendations:

No data available

## Section 14. Transport Information

### DOT (US)

UN number: 1648

Class: 3

Packing Group: II

Proper Shipping Name: Acetonitrile Solution

Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

### RID/ADR

UN number: 1648

Class: 3

Packing Group: II Tunnel Restriction Code: 2(D/E)

Proper Shipping Name: Acetonitrile Solution

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## IMDG

UN number: 1648                      Class: 3                      Packing Group: II EMS-No: F-E, S-D

Proper Shipping Name: ACETONITRILE SOLUTION

## IATA

UN number: 1648                      Class: 3                      Packing Group: II

Proper Shipping Name: Acetonitrile Solution

## Section 15. Regulatory Information

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

#### EU regulations:

Authorizations and/or restrictions on use: None

Other EU Regulations: None

USA regulations

#### SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

#### SARA 313 Components:

The following components are subject to reporting levels established by SARA Title III, Section 313:

Acetonitrile	CAS-No.75-05-8	Revision Date2007-07-01
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#### SARA 311/312 Hazards:

Fire Hazard, Acute Health Hazard

#### Risk Phrases:

R11 – Highly flammable

R22 - Harmful if swallowed

R36 - Irritating to eyes

R45- May cause cancer

R46- May cause inheritable genetic damage

#### Safety Phrases:

S7- Keep container tightly closed

S16 – Keep away from sources of ignition – No Smoking

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection

#### Massachusetts Right to Know Components

Acetonitrile	CAS-No.75-05-8	Revision Date2007-07-01
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#### Pennsylvania Right to Know Components

Acetonitrile	CAS-No.75-05-8	Revision Date2007-07-01
Biphenyl-3,3',4,4'-tetrayltetraamine	CAS-No. 91-95-2	Revision Date

#### New Jersey Right to Know Components

Acetonitrile	CAS-No.75-05-8	Revision Date2007-07-01
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#### California Prop. 65 components:

This product does not contain any chemical known to the State of California to cause cancer, birth defects, or other reproductive harm

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier

## Section 16. Other Information

### Indication of changes:

Not Applicable

### Abbreviations & Acronyms:

<b>HNOC</b>	Hazards Not Otherwise Classified
<b>GHS</b>	Globally Harmonized System
<b>OSHA</b>	Occupational Safety and Health Administration
<b>TWA</b>	Time Weighted Average
<b>PEL</b>	Permissible Exposure Limit
<b>REL</b>	Recommended Exposure Limit
<b>STEL</b>	Short-Term Exposure Limit (15 minutes)
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>DNELs</b>	Derived No-Effect Levels
<b>PNEC</b>	Predicted No-Effect Concentration
<b>BW</b>	Body Weight
<b>NA</b>	Not Applicable
<b>IARC</b>	International Agency for Research on Cancer
<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>NTP</b>	National Toxicology Program
<b>RTECS</b>	Registry of Toxic Effects of Chemical Substances
<b>SARA</b>	Superfund Amendments and Reauthorization Act of 1986
<b>ECHA</b>	European Chemicals Agency

### Key Literature References and sources of data:

European Chemical Agency (ECHA) REGULATION (EC) No 1272/2008  
 Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU  
 Regulation (EC) No. 1272/2008 (CLP, EU GHS)  
 Dangerous Goods Regulations (DGR) for the air transport (IATA)  
 International Maritime Dangerous Goods Code (IMDG)  
 International Agency for Research on Cancer (IARC) - List of Classifications / Volumes 1–123  
 American Conference of Governmental Industrial Hygienists (ACGIH) - 2019 TLVs and BEIs  
 National Toxicology Program (NTP) - Report on Carcinogens (RoC)  
 Occupational Safety and Health Administration (OSHA) – US CFR 1910 Subpart Z

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification Procedure
Flammable liquids (Category 2), H225	Calculation method
Acute toxicity, Oral (Category 4), H302	Calculation method
Eye irritation (Category 2A), H319	Calculation method
Germ Cell Mutagenicity (Category 2), H341	Calculation method

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Classification according to Regulation (EC) Nr. 1272/2008	Classification Procedure
Carcinogenicity (Category 1B), H350	Calculation method

**Training Advice:**

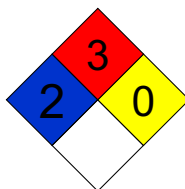
Training and continued education on safe handling of the chemical and chemical waste disposal must be provided to the workers to ensure protection of human health and the environment

**Further Information:**

**HMIS Classification**

<b>HEALTH</b>	*	<b>2</b>
<b>FLAMMABILITY</b>		<b>3</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

**NFPA Rating**



Prepared By:

Otis Institute, Inc. 399 Fremont Street, San Francisco, CA 94105

The information contained in this Safety Data Sheet is believed to be accurate, but it is the responsibility of the user to determine the applicability of this data to necessary safety precautions. Vector Laboratories, Inc. shall not be held responsible for any damage resulting from the use of the above product or the information contained in this Safety Data Sheet

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Previous Version: N/A

## Section 1. Identification Of The Substance/Mixture And Of The Company/Undertaking

### 1.1 Product Identifier

**Substance Name/Product Name:** DAB Peroxidase Substrate Kit - Nickel Solution Reagent 4  
**Product Identifier/Catalog No.:** SK-4100  
**CAS Number:** Not Applicable/Chemical Mixture  
**EC Number:** Not Applicable/Chemical Mixture  
**REACH Registration Number:** Not Applicable/Chemical Mixture

### 1.2 Relevant identified uses and uses advised against

**Relevant identified uses:** Research Grade Use Only, For professional Users Only  
**Uses advised against:** None  
**Reason why uses advised against:** Not Applicable

### 1.3 Details of Safety Data Sheet Supplier

**Manufacturer/Supplier USA:**

Vector Laboratories, Inc.

30 Ingold Road

Burlingame, CA 94010

United States

Tel: (650) 697-3600 Fax: (650) 697-0339

Email: [vector@vectorlabs.com](mailto:vector@vectorlabs.com)

**Supplier United Kingdom:**

Vector Laboratories Ltd.

3 Accent Park

Bakewell Road, Orton Southgate

Peterborough, PE2 6XS, United Kingdom

Tel: (01733) 237999 Fax: (01733) 237119

Email: [vector@vectorlabs.co.uk](mailto:vector@vectorlabs.co.uk)

### 1.4 Emergency Telephone Number

**Emergency Telephone Number:** (650) 697-0339

**Opening hours:** 5 Days a Week – 9 am to 4 pm PST/PDT

**Other comments:** Language English

**ECHA National Helpdesks Link to Safety Data Sheet - National Emergency Telephone Number, if applicable:**

[http://echa.europa.eu/help/nationalhelp\\_contact\\_en.asp](http://echa.europa.eu/help/nationalhelp_contact_en.asp)

## Section 2. Hazards Identification

### 2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP) and 29 CFR 1910.1200 (OSHA HCS)

Skin Corrosion (Category 1B), H314

Skin Sensitization (Category 1), H317

Eye Damage (Category 1), H318

Respiratory Sensitization (Category 1), H334

Germ Cell Mutagenicity (Category 2), H341

Carcinogenicity (Category 1B), H350

Reproductive Toxicity (Category 1B), H360

Acute Aquatic Toxicity (Category 2), H401

Chronic Aquatic Toxicity (Category 2), H411

2.1.2 Additional Information:

EU Hazard-statements: See Section 16

## 2.2 Label Elements and Precautionary Statements

GHS Label:



Signal Word:

Danger

### Hazard Statement(s):

H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H334	May cause allergy or asthma symptoms
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child

### Precautionary Statement(s):

#### Prevention:

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P260	Do not breathe dust/fume/gas/mist/vapors/spray
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash hands thoroughly after handling
P272	Contaminated work clothing should not be allowed out of the workplace
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P285	In case of inadequate ventilation wear respiratory protection

#### Response:

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P302 + P352	IF ON SKIN: wash with plenty of soap and water
P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse SKIN with water/shower
P304 + P340	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing
P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308 + P313	If exposed or concerned: Get medical advice/attention
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310	Immediately call a POISON CENTER or doctor/physician
P321	Specific treatment (see ... on this label)
P333 + P313	IF SKIN irritation or rash occurs: Get medical advice/attention
P342 + P311	IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician
P363	Wash contaminated clothing before reuse

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P391 Collect spillage

*Storage:*

P405 Store locked up

*Disposal:*

P501 Dispose of contents/container to an approved waste disposal plant

*Supplemental Hazard information:*

Container must be labelled "For Professional Users Only"

**2.3 Other Hazards:**

Hazards not otherwise classified (HNOC) or not covered by GHS: None

## Section 3. Composition/Information on Ingredients

### 3.1 Substances / Hazardous Components of Mixture:

Component	Identifier	Classification	% (Weight)
Hydrochloric Acid	CAS# 7647-01-0 EC # 231-595-7 Index # 017-002-01-X Reach Registration # 01-2119484862-27-XXXX	Corrosive to metals (Category 1), H290 Skin corrosion (Category 1B), H314 Eye damage (Category 1), H318 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 Acute aquatic toxicity (Category 3), H402	≤10%
Nickel(II) chloride hexahydrate	CAS # 7791-20-0 EC # 616-576-7 Index # 028-011-00-6 Reach Registration # N/A	Acute toxicity, Oral (Category 3), H301 Skin irritation (Category 2), H315 Skin Sensitization (Category 1), H317 Acute toxicity, Inhalation (Category 3), H331 Respiratory Sensitization (Category 1), H334 Germ Cell Mutagenicity (Category 2), H341 Carcinogen (Category 1B), H350 Reproductive Toxicity (Category 1B), H360 Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 1), H410	≤15%

## Section 4. First Aid Measures

### 4.1 Description of First Aid Measures

*General Notes / Advice:*

Consult a physician IF Exposed. Provide a copy of this safety data sheet to the doctor in attendance. Move out of dangerous area

*Following inhalation:*

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician

*Following skin contact:*

Remove/take off immediately all contaminated clothing. Wash skin with soap and plenty of water. Take victim immediately to hospital. Consult a physician

*Following eye contact:*

Rinse thoroughly with plenty of water for 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital

*Following ingestion:*

DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

### 4.2 Most Important Symptoms and Effects, Both Acute and Delayed

See Section 2 or Section 11



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Hydrochloric Acid - RTECS: MW4025000

- Inhalation of vapors may cause: burning sensation, cough, wheezing, shortness of breath, spasms, inflammation and edema of the larynx, pneumonitis, pulmonary edema

Nickel(II) chloride hexahydrate - RTECS: QR6480000

- Gastrointestinal disturbance
- Stomach - Irregularities - Based on Human Evidence

### 4.3 Indication or any Immediate Medical Attention and Special Treatment Needed

No data available

## Section 5. Fire Fighting Measures

### 5.1 Extinguishing Media

**Suitable extinguishing media:**

Use water spray, alcohol-resistant foam, dry chemicals or carbon dioxide

**Unsuitable extinguishing media:**

No data available

### 5.2 Special hazards arising from substances or mixtures

**Hazardous combustion products:**

No data available

### 5.3 Advice for Firefighters

Protective actions:

Store containers in a dry and well-ventilated place

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary

### 5.1 Further Information

No data available

## Section 6. Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

#### 6.1.1 For non-emergency personnel

**Protective Equipment:**

Use personal protective equipment. Avoid breathing vapors. Ensure adequate ventilation. For information on personal protection see section 8

**Emergency Procedures:**

Evacuate personnel to safe areas

#### 6.1.2 For emergency responders:

Use personal protective equipment to prevent contact with eyes and skin. Ensure adequate ventilation. Avoid breathing vapors. For information on personal protection see section 8

### 6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided

### 6.3 Methods and Materials for Containment and Cleaning up

Contain spillage, and then collect with inert absorbent material and place in container for disposal according to local regulations

#### 6.3.1 For containment:

Dam and absorb spills. Ensure adequate ventilation to prevent vapor accumulations

#### 6.3.2 For cleaning up:

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Ensure adequate ventilation to prevent vapor accumulations

#### 6.3.3 Other information:

No data available

## 6.4 Reference to other Sections

See Sections 8 and Section 13 for additional information

## Section 7. Handling and Storage

### 7.1 Precautions for Safe Handling

In accordance with Article 5 of Directive 98/24/EC and Article 5 of Directive 2004/37/EC

#### Protective Measures:

Avoid contact with skin and eyes. Avoid inhalation of vapor and mist. Wash hands following use and prior to eating. Handle in accordance with good industrial hygiene and safety practice

#### Measures to prevent fire:

See Section 5. Ensure adequate ventilation to prevent accumulation of vapors

#### Measures to prevent aerosol and dust generation:

Not applicable

#### Measures to prevent handling of incompatible substances or mixtures:

See Section 6 and Section 10. Avoid uncontrolled release to the environment

#### Measures to protect the environment:

See Section 6. Avoid uncontrolled release to the environment

#### Advice on general occupational hygiene:

See Section 8. Avoid contact with skin and eyes. Wash hands following use and prior to eating. Handle in accordance with good industrial hygiene and safety practice

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

#### Technical measures and storage conditions:

Keep container tightly closed and store according to product label. Containers which are opened must be carefully resealed and kept upright to prevent leakage

#### Packaging materials:

No data available

#### Requirements for storage rooms and vessels:

Store in a cool and well-ventilated place

Further information on storage conditions: No data available

### 7.3 Specific End Use(s)

#### Recommendations:

See Section 1.2

#### Industrial sector specific solutions:

Not data available

## Section 8. Exposure Controls/Personal Protection

In accordance with Directive 98/24/EC, Article 2(3) of Commission Decision 2014/113/EU, Directive 2004/37/EU, USA OSHA, and California Code of Regulations - Table AC-1

### 8.1 Control Parameters

Components with Workplace Control Parameters:

Substance	Hydrogen Chloride			
CAS No.	7647-01-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Australia			5(1)	7.5(1)

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<b>Substance</b>	Hydrogen Chloride			
<b>CAS No.</b>	7647-01-0			
<u>Canada - Ontario</u>			2(1)	
<u>European Union</u>	<b>5</b>	<b>8</b>	<b>10(1)</b>	<b>15(1)</b>
<u>Finland</u>			5(1)	7.6(1)
<u>Germany (AGS)</u>	2	3	4(1)	6(1)
<u>Ireland</u>	5	8	10(1)	15(1)
<u>Japan - JSOH</u>	2(1)	3(1)		
<u>Latvia</u>	5	8	10(1)	15(1)
<u>People's republic of China</u>				7.5(1)
<u>Romania</u>	5	8	10(1)	15(1)
<u>Singapore</u>			5	7.5
<u>South Korea</u>	1	1.5	2	3
<u>Sweden</u>	2	3	4(1)	6(1)
<u>The Netherlands</u>		8		15
<u>Turkey</u>	5	8	10(1)	15(1)
<u>USA - NIOSH</u>			5(1)	7(1)
	<b>Remarks</b>			
<u>Australia</u>	(1) Ceiling limit value			
<u>Canada - Ontario</u>	(1) Ceiling limit value			
<u>European Union</u>	Bold-type: Indicative Occupational Exposure Limit Values and Limit Values for Occupational Exposure Binding Occupational Exposure Limit Value - BOELV ~ (for references see bibliography)			
<u>Finland</u>	(1) 15 minutes average value			
<u>Germany (AGS)</u>	(1) 15 minutes average value			
<u>Japan -JSOH</u>	(1) Occupational exposure limit ceiling. Reference value to the maximal exposure concentration of the substance during working day			
<u>Latvia</u>	(1) 15 minutes average value			
<u>People's republic of China</u>	(1) Ceiling limit value			
<u>Romania</u>	(1) 15 minutes average value			
<u>Sweden</u>	(1) 15 minutes average value			
<u>Turkey</u>	(1) 15 minutes average value			
<u>USA - NIOSH</u>	(1) Ceiling limit value			

### Components with Derived No-Effect Levels (DNELs):

Vector Laboratories does not manufacturer the components in this mixture. Information provided is based on available lists (GESTIS DNEL List) and/or manufacturer data

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### Workers- Hydrogen Chloride

Routes of Exposure	Short-term local	Short-term systemic	Long-term local	Long-term systemic
Oral	(iii)	(iii)	(iii)	(iii)
Inhalation	15 mg/m <sup>3</sup>	(iii)	8 mg/m <sup>3</sup>	0.029 mg/m <sup>3</sup>
Dermal	(i)	(iii)	(i)	(iii)

Note: (i) hazard identified but no DNEL available, (ii) no exposure expected, (iii) no hazard identified

### Components with Predicted No-Effect Concentration (PNEC):

Vector Laboratories does not manufacturer the components in this mixture. Information provided is based on available lists and/or manufacturer data

### PNEC - Hydrogen Chloride

Environmental Protection Target	PNEC Value
PNEC aquatic, freshwater	No hazard identified
PNEC sediment, freshwater	No hazard identified
PNEC aquatic, marine water	No hazard identified
PNEC sediment, marine water	No hazard identified
PNEC sewage treatment plant	No hazard identified
PNEC soil (agricultural)	No hazard identified
PNEC, air	No hazard identified

### Components with Derived No-Effect Levels (DNELs):

Vector Laboratories does not manufacturer the components in this mixture. Information provided is based on available lists (GESTIS DNEL List) and/or manufacturer data

### Workers- Nickel(II) chloride hexahydrate

Routes of Exposure	Short-term local	Short-term systemic	Long-term local	Long-term systemic
Oral	(iii)	(iii)	(iii)	1 mg/kg BW/d
Inhalation	50 µg /m <sup>3</sup>	104 mg/m <sup>3</sup>	1.6 mg/m <sup>3</sup>	50 µg /m <sup>3</sup>
Dermal	(iii)	(iii)	0.44 µg /cm <sup>3</sup>	(iii)

Note: (i) hazard identified but no DNEL available, (ii) no exposure expected, (iii) no hazard identified

### Components with Predicted No-Effect Concentration (PNEC):

Vector Laboratories does not manufacturer the components in this mixture. Information provided is based on available lists and/or manufacturer data

### PNEC - Nickel(II) chloride hexahydrate

Environmental Protection Target	PNEC Value
PNEC aquatic, freshwater	71 µg/L
PNEC sediment, freshwater	109 mg/kg
PNEC aquatic, marine water	8.6 µg/L
PNEC sediment, marine water	109 mg/kg
PNEC sewage treatment plant	0.33 mg/L
PNEC soil (agricultural)	29.9 mg/kg
PNEC, air	No hazard identified

## 8.2 Exposure Controls

### 8.2.1 Appropriate Engineering Controls:

Based on exposure risk assessments, use enclosures, local exhaust ventilation or other engineering controls to minimize worker exposures

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## 8.2.2 Personal Protective Equipment

### 8.2.2.1 Eye and Face Protection:

Face shield and safety glasses. Use equipment for eye protection that is tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

### 8.2.2.2 Skin Protection:

#### Hand protection:

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. The type of protective gloves must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wash and dry hands following use

Full contact: Hydrochloric Acid

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact: Hydrochloric Acid

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario

#### Other skin protection:

The type of protective equipment required such as impervious clothing, flame retardant antistatic protective clothing, boots shall be selected based on the concentration and amount of the dangerous substance at the specific workplace

### 8.2.2.3 Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

### 8.2.2.4 Thermal Hazards:

No data available

## 8.2.3 Control of Environmental Exposure:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

## Section 9. Physical and Chemical Properties

According to Article 8(2) of Regulation (EC) No 1272/2008, where applicable

Appearance: Clear Liquid

Odor: Not determined

pH: Not determined

Boiling point: Not determined

Melting point: - Not determined

Flash Point: Not determined

Decomposition temperature: Not determined

Vapor pressure: Not determined

Relative density: Not determined

Solubility: Not determined

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Viscosity: Not determined  
Evaporation rate: Not determined  
Odor Threshold: Not determined  
Freezing point: Not determined  
Auto-ignition temperature: Not determined

Upper Explosive Limit: Not determined  
Lower Explosive Limit: Not determined  
Flammability: Not Flammable  
Vapor Density: Not determined  
Partition Coefficient: Not determined

## Section 10. Stability and Reactivity

### 10.1 Reactivity:

No data available

### 10.2 Chemical stability:

Stable under recommended storage conditions

### 10.3 Possibility of Hazardous Reactions:

Vapors may form explosive mixture with air

### 10.4 Conditions to avoid:

No data available

### 10.5 Incompatible Materials:

Oxidizing agents, bases, alkali metals, peroxides, sulphites, sulphides

### 10.6 Hazardous reactions/decomposition products:

Carbon oxides, Hydrogen chloride gas, nickel/nickel oxides See Section 5

## Section 11. Toxicological Information

### 11.1 Information on Toxicological Effects

Hydrochloric Acid - RTECS: MW4025000

- Inhalation of vapors may cause: burning sensation, cough, wheezing, shortness of breath, spasms, inflammation and edema of the larynx, pneumonitis, pulmonary edema

Nickel(II) chloride hexahydrate - RTECS: QR6480000

- Gastrointestinal disturbance
- Stomach - Irregularities - Based on Human Evidence

#### Acute Toxicity:

Hydrochloric acid

Inhalation: May provoke the following symptoms: respiratory irritation, cough, difficulty in breathing, pneumonia

Nickel(II) chloride hexahydrate

LD50 Oral – Rat – 105 mg/kg

#### Skin corrosion/irritation:

Hydrochloric acid

Skin – Rabbit - Causes burns

#### Serious eye damage/eye irritation:

Hydrochloric acid

Eyes – Rabbit – Corrosive to eyes

#### Respiratory or skin sensitization:

Hydrochloric acid

Did not cause sensitization

#### Germ cell mutagenicity:

Nickel(II) chloride hexahydrate

In vitro tests showed mutagenic effects

#### Carcinogenicity:

Nickel(II) chloride hexahydrate

Possible human carcinogen

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed as human carcinogen by IARC

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ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA

**Reproductive toxicity:**

Nickel(II) chloride hexahydrate Presumed human reproductive toxicant

**Specific target organ toxicity - single exposure:**

Hydrochloric acid The substance or mixture is classified as specific target organ toxicant, single exposure, category 3, with respiratory tract irritation

**Specific target organ toxicity - repeated exposure:**

Not classified as an specific target organ toxicant, repeated exposure

**Aspiration hazard:**

No aspiration toxicity classification

**Additional Information:**

Hydrochloric Acid - RTECS: MW4025000

Nickel(II) chloride hexahydrate - RTECS: QR6480000

**Section 12. Ecological Information**

**12.1 Toxicology:**

Hydrochloric acid	Toxicity to fish – LC50 - Lepomis macrochirus (Bluegill) - 24.6 mg/l - 96 h
Hydrochloric acid	Toxicity to daphnia and other aquatic invertebrates- EC50 - Daphnia magna (Water flea) - 4.91 mg/l - 48 h
Nickel(II) chloride hexahydrate	Toxicity to daphnia and other aquatic invertebrates- EC50 - Daphnia magna (Water flea) – 0.51 mg/l - 48 h

**12.2 Persistence and degradability:**

No data available

**12.3 Bioaccumulative potential:**

No data available

**12.4 Mobility in soil:**

No data available

**12.5 PBT and vPvB assessment:**

No data available

**12.6 Other adverse effects:**

No data available

**12.7 Additional Information:**

May be harmful to aquatic organisms due to the shift of the pH. Do not let product enter drains. Do not empty into drains

**Section 13. Disposal Considerations**

**13.1 Waste Treatment Methods:**

**13.1.1 Product / Packaging Disposal:**

**Product:**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose in a safe manner in accordance per local/national regulations

**Packaging:**

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Dispose of as unused product

### 13.1.2 Waste treatment-relevant information:

No data available

### 13.1.3 Sewage disposal-relevant information:

Sewage disposal must meet the local and federal regulations

### 13.1.4 Other disposal recommendations:

No data available

## Section 14. Transport Information

### DOT (US)

UN number: 1789                      Class: 8                      Packing Group: II  
Proper Shipping Name: Hydrochloric Acid Solution  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### RID/ADR

UN number: 1789                      Class: 8                      Packing Group: II Tunnel Restriction Code: 2(E)  
Proper Shipping Name: HYDROCHLORIC ACID SOLUTION

### IMDG

UN number: 1789                      Class: 8                      Packing Group: II EMS-No: F-A, S-B  
Proper Shipping Name: Hydrochloric Acid Solution

### IATA

UN number: 1789                      Class: 8                      Packing Group: II  
Proper Shipping Name: Hydrochloric Acid Solution

## Section 15. Regulatory Information

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

EU regulations:

Authorizations and/or restrictions on use: None

Other EU Regulations: None

USA regulations

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 313 Components:

The following components are subject to reporting requirements established by SARA Title III, section 313:

Hydrochloric Acid	CAS-No. 7647-01-0	Revision Date 2007-07-01
Nickel(II) chloride hexahydrate	CAS-No. 7791-20-0	Revision Date 2007-07-01

SARA 311/312 Hazards:

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Risk Phrases:

R25 – Toxic if swallowed

R11 – Highly flammable

R36/37/38 - Irritating to eyes, respiratory system and skin

R43 – May cause sensitivity by skin contact

R45 – May cause cancer

R50/53 – Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment



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## Safety Phrases:

S7- Keep container tightly closed

S36/37/39 – Wear suitable protective clothing, gloves and eye/face protection

S53 - Avoid exposure – obtain special instructions before use

S60/61- This material and container must be disposed of as hazardous waste. Avoid release to the environment.

## Massachusetts Right to Know Components

Hydrochloric Acid	CAS-No. 7647-01-0	Revision Date 2007-07-01
Nickel(II) chloride hexahydrate	CAS-No. 7791-20-0	Revision Date 2007-07-01

## Pennsylvania Right to Know Components

Hydrochloric Acid	CAS-No. 7647-01-0	Revision Date 2007-07-01
Nickel(II) chloride hexahydrate	CAS-No. 7791-20-0	Revision Date 2007-07-01

## New Jersey Right to Know Components

Hydrochloric Acid	CAS-No. 7647-01-0	Revision Date 2007-07-01
Nickel(II) chloride hexahydrate	CAS-No. 7791-20-0	Revision Date 2007-07-01

## California Prop. 65 components:

**WARNING!** This product contains a chemical known to the State of California to cause cancer

Nickel(II) chloride hexahydrate	CAS-No. 7791-20-0	Revision Date 2007-07-01
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## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier

## Section 16. Other Information

### Indication of changes:

Not Applicable

### Abbreviations & Acronyms:

<b>HNOC</b>	Hazards Not Otherwise Classified
<b>GHS</b>	Globally Harmonized System
<b>OSHA</b>	Occupational Safety and Health Administration
<b>TWA</b>	Time Weighted Average
<b>PEL</b>	Permissible Exposure Limit
<b>REL</b>	Recommended Exposure Limit
<b>STEL</b>	Short-Term Exposure Limit (15 minutes)
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>DNELs</b>	Derived No-Effect Levels
<b>PNEC</b>	Predicted No-Effect Concentration
<b>BW</b>	Body Weight
<b>NA</b>	Not Applicable
<b>IARC</b>	International Agency for Research on Cancer
<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>NTP</b>	National Toxicology Program
<b>RTECS</b>	Registry of Toxic Effects of Chemical Substances
<b>SARA</b>	Superfund Amendments and Reauthorization Act of 1986
<b>ECHA</b>	European Chemicals Agency

**Key Literature References and sources of data:**

European Chemical Agency (ECHA) REGULATION (EC) No 1272/2008  
 Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU  
 Regulation (EC) No. 1272/2008 (CLP, EU GHS)  
 Dangerous Goods Regulations (DGR) for the air transport (IATA)  
 International Maritime Dangerous Goods Code (IMDG)  
 International Agency for Research on Cancer (IARC) - List of Classifications / Volumes 1–123  
 American Conference of Governmental Industrial Hygienists (ACGIH) - 2019 TLVs and BEIs  
 National Toxicology Program (NTP) - Report on Carcinogens (RoC)  
 Occupational Safety and Health Administration (OSHA) – US CFR 1910 Subpart Z

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**

Classification according to Regulation (EC) Nr. 1272/2008	Classification Procedure
Skin Corrosion (Category 1B), H314	Calculation method
Skin Sensitization (Category 1), H317	Calculation method
Eye Damage (category 1), H318	Calculation method
Respiratory Sensitization (Category 1), H334	Calculation method
Germ Cell Mutagenicity (Category 2), H341	Calculation method
Carcinogenicity (Category 1B), H350	Calculation method
Reproductive Toxicity (Category 1B), H360	Calculation method
Acute Aquatic Toxicity (Category 2), H401	Calculation method
Chronic Aquatic Toxicity (Category 2), H411	Calculation method

**Training Advice:**

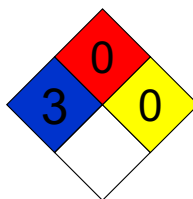
Training and continued education on safe handling of the chemical and chemical waste disposal must be provided to the workers to ensure protection of human health and the environment

**Further Information:**

**HMIS Classification**

<b>HEALTH</b>	*	<b>3</b>
<b>FLAMMABILITY</b>		<b>0</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

**NFPA Rating**



Prepared By:

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The information contained in this Safety Data Sheet is believed to be accurate, but it is the responsibility of the user to determine the applicability of this data to necessary safety precautions. Vector Laboratories, Inc. shall not be held responsible for any damage resulting from the use of the above product or the information contained in this Safety Data Sheet

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## Section 1. Product and Company Identification

**Product Name:** DAB Peroxidase Substrate Kit – Other Kit components (Reagents 1 & 3)

**Catalog No.:** SK-4100

**Manufacturer/Supplier USA:**

Vector Laboratories, Inc.

30 Ingold Road

Burlingame, CA 94010

United States

Tel: (650) 697-3600 Fax: (650) 697-0339

Email: vector@vectorlabs.com

**Supplier United Kingdom:**

Vector Laboratories Ltd.

3 Accent Park

Bakewell Road, Orton Southgate

Peterborough, PE2 6XS, United Kingdom

Tel: (01733) 237999 Fax: (01733) 237119

Email: vector@vectorlabs.co.uk

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## Section 2. Hazards Identification

**GHS Classification:**

This product has been classified as non-hazardous based on the physical and/or chemical nature and/or concentration of ingredients.

**GHS Label:** Non-hazardous substance or mixture.

**Hazards not otherwise classified (HNOC) or not covered by GHS:** None

## Section 3. Composition/Information on Ingredients

No ingredients are hazardous according to OSHA criteria.

No components need to be disclosed according to the applicable regulations.

## Section 4. First Aid Measures

**Inhalation:** Remove to fresh air.

**Skin contact:** Wash thoroughly with soap and water.

**Eye Contact:** Flush eyes with water as a precaution.

**Ingestion:** Do not induce vomiting. Wash out mouth with water.

## Section 5. Fire Fighting Measures

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment:** Use respirator for fire fighting if necessary.

## Section 6. Accidental Release Measures

Wear protective clothing to prevent contact with eyes and skin. Ensure adequate ventilation. Collect on

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absorbent material and dispose of according to federal, state and local environmental regulations.

## Section 7. Handling and Storage

**Handling:** Use only with adequate ventilation. Wear eye protection and compatible chemical-resistant gloves. Handle in accordance with good industrial hygiene and safety practice.

**Storage:** Keep container tightly closed and store according to product label.

## Section 8. Exposure Controls/Personal Protection

**Exposure limits:** Contains no substances with occupational exposure limit values.

**Engineering controls:** Use enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

**Personal protection:**

**Hand protection** - Compatible chemical-resistant gloves.

**Eye protection** - Chemical safety goggles.

**Skin protection** - Lab coat.

## Section 9. Physical and Chemical Properties

**Appearance:** Liquid

**Odor:** None

**pH:** Not determined

**Boiling point:** Not determined.

**Melting point:** Not determined.

**Flash Point:** Not determined.

**Autoflammability:** Not determined.

**Vapor pressure:** Not determined.

**Relative density:** Not determined.

**Solubility:** Not applicable.

## Section 10. Stability and Reactivity

**Chemical stability:** Stable under recommended storage conditions.

**Conditions to avoid:** pH extremes.

**Materials to avoid:** Not applicable.

**Hazardous reactions/decomposition products:** Not determined.

## Section 11. Toxicological Information

**Acute toxicity:** No data available.

**Chronic toxicity:** No data available.

## Section 12. Ecological Information

No data available.

## Section 13. Disposal Considerations

Observe all federal, state and local environmental regulations.

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## Section 14. Transport Information

**DOT (US):** Not dangerous goods.

**RID/ADR:** Not regulated.

**IMDG:** Not dangerous goods.

**IATA:** Not dangerous goods.

## Section 15. Regulatory Information

**Substances of Very High Concern:** None

**SARA:**

SARA 302 - No chemicals in this material are subject to the reporting requirements.

SARA 313 - No chemicals in this material with known CAS #s are subject to the reporting requirements.

SARA 311/312 Hazards - No SARA Hazards.

**California Prop. 65 components:**

This product does not contain any chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

## Section 16. Other Information

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