1. PRODUCT AND COMPANY IDENTIFICATION

**Product Description**: DAB Reagent Set  
**Catalog No.**: 54-10-00

**Hazardous Reagent**: DAB Solution  
**Hazardous Reagent Product code**: 71-00-46

**Recommended Use**: Reagent

**Contact Manufacturer**: KPL, Inc.  
910 Clopper Road  
Gaithersburg, Maryland 20878  
USA

**Emergency Telephone Numbers**:  
- **AUSTRALIA – POISONS INFORMATION CENTER**: Telephone: 13 11 26  
  Hours: 24 hours
- **CANADIAN TRANSPORT EMERGENCY CENTER**: Telephone: 1-800-638-3167  
  Hours: 24 hours/day, 7 days/week
- **UK – THE NATIONAL FOCUS**: Telephone: (44) 029 2041 6388  
  Hours: 09:00-17:00 GMT
- **USA – NATIONAL RESPONSE CENTER**: Telephone: 1-800-424-8802  
  Hours: 24 hours/day, 7 days/week

2. HAZARD IDENTIFICATION

**Hazard Type**:  
- Hydrochloric Acid - Corrosive; Suspected Gastrointestinal or Liver Toxicant (EPA-HEN RTECS), Immunotoxicant (EPA-HEN), Musculoskeletal Toxicant (EPA-HEN), Respiratory Toxicant (EPAHEN HAZMAP OEHHA-AREL OEHHA-CREL RTECS), 3,3'-Diaminobenzidine 3 HCl - Suspected Carcinogen

**Principle Route of Exposure**: The substance can be absorbed into the body by inhalation. Target Organs: Respiratory system, gastrointestinal system, teeth, eyes, skin.

**Acute Effects: Eye**:  
Data for 100% Hydrochloric Acid:- Corrosive. Pain. Blurred vision. Severe deep burns.

**Acute Effect: Skin**:  
Data for 100% Hydrochloric Acid:- ON CONTACT WITH LIQUID: FROSTBITE. Corrosive. Serious skin burns. Pain.

**Acute Effects: Inhalation**:  
Data for 100% Hydrochloric Acid:- Corrosive. Burning sensation. Cough. Laboured breathing. Shortness of breath. Sore throat. Symptoms may be delayed

**Acute Effects: Ingestion**:  
Data for 100% Hydrochloric Acid: Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

**Chronic Effects**:  
Data for 100% Hydrochloric Acid: Rapid evaporation of the liquid may cause frostbite. The substance is corrosive to the eyes, the skin and the respiratory tract. Inhalation of
high concentrations of the gas may cause pneumonitis and lung oedema, resulting in reactive airways dysfunction syndrome (RADS) (see Notes). The effects may be delayed. Medical observation is indicated.

Additional Information: Not Available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CHEMICAL</th>
<th>% Weight</th>
<th>CAS #</th>
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</thead>
<tbody>
<tr>
<td>DAB Reagent Set</td>
<td>Hydrochloric Acid</td>
<td>3.3</td>
<td>7647-01-0</td>
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<tr>
<td></td>
<td>3,3'-Diaminobenzidine</td>
<td>2.5</td>
<td>7411-49-6</td>
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</tbody>
</table>

### 4. FIRST AID MEASURES

**General Advice**
Wash contaminated clothing before reuse. Consult a physician if irritation persists.

**Oral Exposure**
Rinse mouth. Refer for medical attention.

**Inhalation Exposure**
Remove subject to fresh air. Seek medical attention if necessary.

**Skin Exposure**
First rinse with plenty of water, then remove contaminated clothes and rinse again. Refer for medical attention.

**Eye Exposure**
First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

### 5. FIRE FIGHTING MEASURES

**Extinguishing media**
Foam, Alcohol Foam, CO2, Dry Chemical, and Water/Fog

**Unusual Fire and Explosive Hazards**
May emit toxic fumes under fire conditions.

**Flash Point**
Non-Flammable

**Autoignition Temperature**
Not Available

**Flammability Statement**
Not Flammable

**Specific hazards arising from the chemical**
Not Available

**Protective equipment and precautions for firefighters**
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**
Avoid contact with skin and clothing.

**Environmental Precautions**
Not Available

**Method of Containment**
Collect leaking and spilled liquid in sealable containers as far as possible.
7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practice.
Storage: Store refrigerated at 2 –8°C.

8. EXPOSURE CONTROL

Respiratory Protection None required if good ventilation is maintained. Otherwise wear MSHA/NIOSH approved respirator suitable for vapor or mist concentrations encountered.
Eye Protection Safety goggles.
Skin Protection Protective gloves. Protective clothing.
Ingestion Do not eat, drink, or smoke during work.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Clear, brown or purple colored solution
Physical State Liquid
Odor Not Available
Odor Threshold Not Available
pH Not Available
Boiling Point Data for 100% Hydrochloric Acid: -85°C
Evaporation Rate Not Available
Vapor Density Data for 100% Hydrochloric Acid: (air = 1): 1.3
Vapor Pressure Not Available
Relative Density Data for 100% Hydrochloric Acid: 1.00045 g/l (gas)
Auto-Ignition Temperature Not Available
Water Solubility Dilutable
Flammability Non-Flammable
Flash Point Non-Flammable
Viscosity Not Available
Oxidizing Properties Not Oxidizing
Explosive Properties Not Explosive
Additional Parameters Not Available

10. STABILITY AND REACTIVITY

Chemical Stability Stable
Conditions to avoid Data for 100% Hydrochloric Acid: Separated from combustible and reducing substances, strong oxidants, strong bases, metals
Incompatibility Materials to Avoid Metals, strong oxidizing agents
Hazardous Decomposition Products
Upon evaporation of water, may emit toxic fumes of Hydrogen chloride

Hazardous Polymerization
Will not occur

Possibility of hazardous reactions
Data for 100% Hydrochloric Acid: Attacks many metals in the presence of water forming flammable/explosive gas

11. TOXICOLOGY MEASURES

Acute Toxicity
The toxicological risks are minor due to the low concentration of hazardous ingredients. The following toxicological information is for the hazardous ingredient in pure form.

LD50 Oral
Data for >2-10% aqueous Hydrochloric Acid: SPECIES: Rat ENDPOINT: LD50 VALUE: 2210 mg/kg Acutely toxic

LD50 Dermal
Data for >2-10% aqueous Hydrochloric Acid: SPECIES: Mouse ENDPOINT: LD50 VALUE: 1449 mg/kg bw Acutely toxic

LC50 Inhalation
Not Available

Chronic Toxicity
Carcinogenicity
Not Applicable

Irritation
Not Available

Corrosivity
Data for >2-10% aqueous Hydrochloric Acid: Corrosive to dermal and ocular tissue

Sensitization
Not Applicable

Neurological Effects
Not Applicable

Mutagenic Effects
Not Applicable

Reproductive Effects
Not Applicable

Developmental Effects
Not Applicable

Target Organ Effects
Eyes, Skin and Respiratory tract

Other adverse effects
Not Available

12. ECOLOGICAL MEASURES

Ecotoxicity
Data for 36% Hydrochloric Acid: LC50 Crustaceans (48 hours) Minimum: 240 mg/l Maximum: 260 mg/l Median: 250 mg/l

Persistence/Degradability
Not Available

Mobility in Environmental Media
Not Available

Bioaccumulation/Accumulation
Not Available

13. DISPOSAL MEASURES

Waste Disposal Method:
Carefully stir residue into a large excess of water. Next, neutralise with soda lye; check the pH level. Place in a collection container for salt solutions. This container should be adjusted for a
14. TRANSPORTATION MEASURES

DOT: Not regulated.
IATA: Not regulated
ADR (road)/ RID (rail): Not regulated
IMDG (sea): Not regulated
General Transport Regulations Not Available

15. REGULATORY MEASURES

This product is a mixture that may contain one or more hazardous chemicals. The hazardous ingredients listed are only those as required by 29 CFR 1910.1200 g 2.C1.

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains no chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (See 40 CFR 61)
CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

State Regulations
California Proposition 65:
This product contains the following Proposition 65 chemicals: None of the chemicals in this product are listed.

State Right to Know Act

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hydrochloric Acid</th>
<th>3,3'-Diaminobenzidine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
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<td>New Jersey</td>
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<tr>
<td>Rhode Island</td>
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</tbody>
</table>

International Inventories

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<thead>
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<th>Chemical Name</th>
<th>Hydrochloric Acid</th>
<th>3,3'-Diaminobenzidine</th>
</tr>
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<tbody>
<tr>
<td>TSCA</td>
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<tr>
<td>NDSL</td>
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</table>
The product does not contain a hazardous ingredient in an amount that requires identification and labeling according to EC directives.

Annex I Index# Data for 100% Hydrogen Chloride: 017-002-01-X
Classification C; R34 X; R37
Risk Phrases R34: Causes burns R37: Irritating to respiratory system
Safety Phrases S1/2: Keep locked up and out of the reach of children S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
Symbols and Indications of Danger C: Corrosive
Specific Concentration Limits 1 % ≤ C < 5 % C; R20-35
Export and Import This substance is not listed in the Annex I of Regulation (EC) No 689/2008.
European Priority List This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances.)

16. OTHER INFORMATION

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. KPL shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes. This material is sold for research purposes and is intended as laboratory reagents only. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals.