



Material Safety Data Sheet (MSDS)
Revision Date: 11-27-2022

Kit Name: Enhanced DAB Substrate Kit (1000 Tests)
Catalog#: VB-6003E

Components:

VB-6003E-1	DAB stock solution (40×)
VB-6003E-2	DAB enhanced buffer

VB-6003E-1 DAB stock solution MSDS

1. Identification of the Substance/Mixture and Company

Product Name DAB stock solution (40×)
Catalog# VB-6003E-1
Product Description Component
Manufacturer/Supplier VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850
Tel/fax Number Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Hazards Identification

Classification of the substance or mixture

Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350

Label elements and precautionary statements

Pictogram :

Signal word : Danger

Hazard statement(s) :

H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H341 - Suspected of causing genetic defects.
H350 - May cause cancer

Precautionary statement(s) :

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P264 - Wash skin thoroughly after handling. P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+312+330 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+313 - IF exposed or concerned: Get medical advice/attention.
P337+313 - If eye irritation persists: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

No unclassified hazards known.

NFPA Rating

Health hazard : 2
Fire hazard : 0
Reactivity hazard : 0

HMIS Rating

Health hazard : 2
Chronic health hazard : *
Reactivity hazard : 0

Flammability : 0
Physical hazard : 0

3. Composition/information on ingredients

Mixtures Description: Mixture of the substances listed below.

Composition:

Component	CAS#
Propylene glycol	57-55-6
DAB	91-95-2

4. First Aid Measures

Description of first aid measures

General advice

Consult a physician if symptoms are severe or persistent. Provide this data sheet to medical personnel. If product is spilled or leaked, evacuate area.

In case of inhalation

If inhaled, move person to fresh air and monitor breathing. If not breathing, give artificial ventilation. Consult a physician if symptoms are severe or persistent.

In case of skin contact

Immediately wash with excess soap and water. If spilled on clothing, remove all affected clothing. Consult a physician if symptoms are severe or persistent.

In case of eye contact

Flush eyes with water or eye wash solution as a precaution for 15 minutes. Consult a physician if symptoms are severe or persistent.

In case of ingestion

Only induce vomiting if recommended by medical personnel. If subject is unconscious, do not give anything by mouth. If conscious, rinse mouth with water. Consult a physician if symptoms are severe or persistent.

Most important symptoms and effects, both acute and delayed

All known important symptoms are described in Section 2 and/or Section 11. No other important symptoms to report.

Indication of any immediate medical attention and special treatment needed

No special treatment indicated. Provide treatment in accordance with exhibited systems.

5. Firefighting Measures

Suitable extinguishing media

Water spray, alcohol-resistant foam, dry chemical, and carbon dioxide extinguishers are suitable.

Unsuitable extinguishing media

No known unsuitable extinguishing media.

Special hazards arising from the substance

Carbon oxides, nitrogen oxides (NO_x)

Advice for firefighters

Wear protective gear, such as self-contained breathing apparatus, if necessary

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Provide suitable ventilation. Use any necessary personal protective equipment. Avoid contact with skin and eyes, and avoid creation and inhalation of vapor or dust. Keep all unnecessary personnel away.

For personal protection see section 8

Environmental precautions

Prevent product from entering public sewers and waterways.

Methods and material for containment and cleaning up

Use inert absorbent material to absorb any spilled or leaked product. Keep in suitable, closed containers for disposal.

For proper disposal see section 13

7. Handling and Storage

Precautions for safe handling

Provide suitable ventilation. Wear any necessary personal protective equipment.

For precautions see section 2

Conditions for safe storage, including any incompatibilities

Storage conditions : Store upright, closed container in arid, ventilated environment. Storage Temperature: 2-8°C Product is sensitive to light.

Incompatible materials : Strong oxidizing agents are incompatible with this product.

8. Exposure Controls/Personal Protection

Control parameters

This product is not known to contain any substances with occupational exposure limit values.

Engineering controls

Follow good industrial hygiene and safety practices when handling product.

Personal protective equipment

Eye/face protection : Use only government-approved safety glasses with side-shields.

Skin protection : Use gloves when handling product. Inspect gloves before use to ensure suitability for use. Remove without exposing skin to the gloves outer surface. Discard used gloves according to all pertinent laws and/or current good practices (cGXP). Wash hands with soap and water.

Body protection : Wear appropriate clothing. Ensure clothing is in good condition, with no holes or tears. When selecting clothing, consider the concentration and amount of substance to be handled.

Respiratory protection : Use only approved respirators and components which comply with CDC and NIOSH (US) or CEN (EU) regulations. Required only when vapors or aerosols are created.

Control of environmental exposure : Prevent product from entering the environment, especially through public sewers or waterways.

General hygiene considerations : Comply with general industrial hygiene practice guidelines.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State: Liquid

Appearance: brown

Odor: weak odor

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: >1.0

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: > 100 deg C

Freezing/Melting Point: > 0 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: Not available.

Molecular Formula: Solution

Molecular Weight: Not available.

10 Stability and Reactivity

Reactivity

No special reactivity is known.

Chemical stability

Product is stable when stored and used as recommended.

Stability note(s)

Avoid exposing the product to light.

Polymerization

No known polymerization.

Possibility of hazardous reactions

No hazardous reactions are known.

Incompatible materials

Strong oxidizing agents are incompatible with this product.

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Acute toxicity

LD50 Oral : Mouse - 1834 mg/kg LD50 Dermal : No toxicity data available.

LC50 Inhalation : No toxicity data available.

Skin corrosion/irritation

No skin/corrosion irritation data available.

Serious eye damage/eye irritation

No eye damage/irritation data available.

Respiratory or skin sensitization

No sensitization data available.

Germ cell mutagenicity

In vitro tests have shown that this product causes unscheduled DNA synthesis and other mutagenic effects.

Carcinogenicity

IARC : Product and components are not regulated by the IARC.

ACGIH : Product and components are not regulated by the ACGIH.

NTP : Product and components are not regulated by the NTP.

OSHA : Product and components are not regulated by OSHA.

Reproductive toxicity

No reproductive toxicity data available.

Specific target organ toxicity – single exposure

No specific organ toxicity data available.

Specific target organ toxicity – repeated exposure

No specific organ toxicity data available.

Aspiration hazard

No aspiration hazard data available.

Additional Information

RTECS: DV8750000.

12. Ecological Information

Toxicity

No ecological toxicity data available.

Aquatic toxicity

No aquatic toxicity data available.

Persistence and degradability

No persistence/degradability data available.

Bioaccumulative potential

No bioaccumulation data available.

Mobility in soil

No soil mobility data available.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment is not required/was not conducted.

Other adverse effect

No other adverse effect data available.

13. Disposal Considerations

Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult and adhere to local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Packaging

Packaging should be disposed of in the same manner as unused product.

Recommendation

Disposal must be made according to official regulations.

14. Transport Information

DOT (US)

Not a dangerous good under DOT(US) regulations.

IMDG

Not a dangerous good under IMDG regulations.

IATA

Not a dangerous good under IATA regulations.

15. Regulatory Information

SARA

SARA 302: This product and components are not subject to the reporting requirements of SARA Title

SARA 313: III, Section 302.
This product does not contain any components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

SARA 311/312: Acute Health Hazard, Chronic Health Hazard 15.2 Clean water act (CWA) No chemicals are present in this product that are subject to regulation under the Clean Water Act.

Right to know components

Massachusetts : No chemicals are present which require disclosure under the Massachusetts Right to Know Act.

Pennsylvania : Biphenyl-3,3',4,4'-tetrayltetraamine CAS No.: 91-95-2

New Jersey : Biphenyl-3,3',4,4'-tetrayltetraamine CAS No.: 91-95-2

California proposition 65 components : This product contains no chemicals which are known to the State of California to cause cancer, or birth defects or other reproductive harm.

16. Other Information

This information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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VB-6003E-2 DAB buffer MSDS

1. Identification of the Substance/Mixture and Company

Product Name DAB stock buffer
Catalog# VB-6003E-2
Product Description Component
Manufacturer/Supplier VitroVivo Biotech, LLC. 405 E Gude Dr., Suite 214, Rockville, MD 20850
Tel/fax Number Phone: 301-500-0499; Toll free: 1-800-260-9817 Fax: 844-248-6208

2. Hazards Identification

Classification of the substance or mixture

Appearance: clear, colorless liquid

Caution! May cause eye, skin, and respiratory tract irritation. This is expected to be a low hazard for usual handling.

Target Organs: none

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause respiratory of the digestive. Low hazard for usual industrial handling.

Chronic: No information found.

3. Composition/information on ingredients

Mixtures Description: Mixture of the substances listed below.

Composition:

Component	CAS#
Sodium pyrophosphate	13472-36-1
Tris, Hydrochloride	1185-53-1
H ₂ O ₂	7722-84-1
Nicel II chloride	7718-54-9

4. First Aid Measures

Description of first aid measures

Inhalation Move affected person to fresh air at once. Keep affected person warm and at rest. Get medical attention immediately.

Ingestion Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Wash mouth out with water. Get medical aid if irritation or symptoms occur.

Skin contact Rinse immediately with plenty of water. Remove contaminated clothing. Get medical attention promptly if symptoms occur after washing.

Eye contact Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.

Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically and supportively.

5. Firefighting Measures

General Information

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes.

Extinguishing Media

Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

6. Accidental Release Measures

General Information

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks

Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust. Provide ventilation.

7. Handling and Storage

Handling

Wash thoroughly after handling. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation.

Storage

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. No special precautions indicated.

8. Exposure Controls/Personal Protection

Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium pyrophosphate	none listed	none listed	none listed
Tris, Hydrochloride	none listed	none listed	none listed
H ₂ O ₂	none listed	none listed	none listed
Nickel II chloride	none listed	none listed	none listed

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State: Liquid

Appearance: clear, colorless

Odor: weak odor

pH: 7.5

Vapor Pressure: Not available.
Vapor Density: >1.0
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: > 100 deg C
Freezing/Melting Point: > 0 deg C
Decomposition Temperature: Not available.
Solubility: Soluble.
Specific Gravity/Density: Not available.
Molecular Formula: Solution
Molecular Weight: Not available.

10 Stability and Reactivity

Chemical Stability: Stable.
Conditions to Avoid: Incompatible materials, excess heat.
Incompatibilities with Other Materials: Strong acids, strong bases.
Hazardous Decomposition Products: Carbon monoxide, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported

11. Toxicological Information

Information on toxicological effects

Toxicological effects	No information available.
Skin corrosion/irritation	
Extreme pH	
Serious eye damage/irritation	Not determined.
Germ cell mutagenicity	
Genotoxicity - in vitro	Not determined.
Genotoxicity - in vivo	Not determined.
Carcinogenicity	Not determined.
Reproductive toxicity - fertility	Not determined.
Specific target organ toxicity - single exposure	
STOT - single exposure	Not determined.
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	Not determined.
Aspiration hazard	Not determined.
General information	No specific health hazards known.
Epidemiology:	No information found

12. Ecological Information

Toxicity

Acute toxicity - fish Not determined.

Persistence and degradability

Persistence and degradability There are no data on the degradability of this product.

Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not determined.

Mobility in soil

Mobility The product is soluble in water.

Results of PBT and vPvB assessment

Results of PBT and vPvB assessment No information available

Other adverse effects

Other adverse effects Not determined.

13. Disposal Considerations

Waste treatment methods

General information When handling waste, the safety precautions applying to handling of the product should be considered.
Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

14. Transport Information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
Road transport notes Not classified.
Rail transport notes Not classified.
Sea transport notes Not classified.
Air transport notes Not classified.

UN number Not applicable.

UN proper shipping name Not applicable.

Transport hazard class(es) Not applicable.

Packing group Not applicable.

Environmental hazards

Environmentally hazardous substance/marine pollutant No.

Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory Information

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

EU legislation Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Guidance Workplace Exposure Limits EH40. Approved Classification and Labelling Guide (Sixth edition) L131. Safety Data Sheets for Substances and Preparations.

Chemical safety assessment No chemical safety assessment has been carried out.

16. Other Information

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IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

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