SAFETY DATA SHEET



DAB and DAB plus Chromogen Solution

Section 1. Identification

1.1 Product identifier

Product name : DAB and DAB plus Chromogen Solution

Part no. : EE001, GV800, GV823, GV825, K0620, K3467, K3468, K5007, K8000, K8002, K8023,

SK001, SK005, SK006

Validation date : 9/21/2023

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses

: Laboratory use

Container type: Bottle

GE001 // EnVision FLEX DAB+ Chromogen (Dako Omnis) // HercepTest mAb

pharmDx (Dako Omnis) // 1 x 1 mL

GV800 // EnVision FLEX DAB+ Chromogen (Dako Omnis) // EnVision FLEX, High pH

(Dako Omnis) // 8 x 1 mL

GV823 // EnVision FLEX DAB+ Chromogen (Dako Omnis) // EnVision FLEX Mini Kit,

High pH (Dako Omnis) // 2 x 1 mL

GV825 // EnVision FLEX DAB+ Chromogen (Dako Omnis) // EnVision FLEX DAB+

Substrate Chromogen System (Dako Omnis) // 2 x 1 mL

K0620 // DAB Chromogen // Dako GenPoint, Tyramide Signal Amplification System for

Biotinylated Probes // 1 x 0.2 mL

K3467 // DAB+ Chromogen // Dako Liquid DAB+ Substrate Chromogen System // 1 x 1

mL

K3468 // DAB+ Chromogen // Dako Liquid DAB+ Substrate Chromogen System // 1 x 5

mL

K5007 // DAB+ Chromogen (x 50) // Dako REAL EnVision Detection System,

Peroxidase/DAB+, Rabbit/Mouse// 1 x 5 mL

K8000 // EnVision FLEX DAB+ Chromogen // EnVision FLEX, High pH, (Link) // 3 x 3 mL K8002 // EnVision FLEX DAB+ Chromogen // EnVision FLEX+, Mouse, High pH, (Link) //

3 x 3 mL

K8023 // EnVision FLEX DAB+ Chromogen // EnVision FLEX Mini Kit, High pH, (Link) //

1 x 3 mL

SK001 // HercepTest DAB Chromogen // HercepTest for Automated Link Platforms // 1

x 1 mL

SK005 // DAB+ Chromogen // PD-L1 IHC 28-8 pharmDx // 1 x 5 mL

SK006 // DAB+ Chromogen // PD-L1 IHC 22C3 pharmDx // 1 x 5 mL

Reference number: SDS086

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer: Agilent Technologies, Inc.

5301 Stevens Creek Blvd Santa Clara, CA 95051, USA

Tel: +1 800 227 9770

Agilent Technologies Singapore (International) Pte Ltd.

No. 1 Yishun Avenue 7 Singapore, 768923 Tel. (65) 6276 2622

Agilent Technologies Denmark ApS

Produktionsvej 42 2600 Glostrup, Denmark

Tel. +45 44 85 95 00

www.Agilent.com

Date of issue: 09/21/2023 1/12

Section 1. Identification

e-mail address of person responsible for this SDS

: SDS@Agilent.com

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard

(29 CFR 1910.1200).

Classification of the substance or mixture

H319 EYE IRRITATION - Category 2A

H341 GERM CELL MUTAGENICITY - Category 2

H350 CARCINOGENICITY - Category 1B

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic

environment: 4.6%

2.2 GHS label elements

Hazard pictograms





Signal word : Danger

Hazard statements : H319 - Causes serious eye irritation.

H341 - Suspected of causing genetic defects.

H350 - May cause cancer.

Precautionary statements

Prevention: P201 - Obtain special instructions before use.

P280 - Wear protective gloves, protective clothing and eye or face protection.

Response : P308 + P313 - IF exposed or concerned: Get medical advice or 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. P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage : Not applicable.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national

and international regulations.

2.3 Other hazards

Hazards not otherwise : None known.

classified

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Propane-1,2-diol	≥75 - ≤90	57-55-6
3,3-Diaminobenzidine tetrahydrochloride	≤5	868272-85-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Date of issue: 09/21/2023 **2/12**

Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact

: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation: No known significant effects or critical hazards.Skin contact: No known significant effects or critical hazards.Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain or irritation watering redness

Inhalation: No specific data.Skin contact: No specific data.Ingestion: No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed.

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific treatment.

Date of issue: 09/21/2023 3/12

Section 4. First aid measures

Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing

: None known.

media

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials: carbon dioxide

carbon monoxide nitrogen oxides

halogenated compounds

5.3 Advice for firefighters

Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

09/21/2023 Date of issue:

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: Specific storage conditions: Please consult the label. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

solutions

Recommendations Industrial sector specific : Industrial applications, Professional applications.

: Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane-1,2-diol	OARS WEEL (United States, 4/2022). TWA: 10 mg/m³ 8 hours.
3,3-Diaminobenzidine tetrahydrochloride	None.

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

Appropriate engineering controls

: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Date of issue: 09/21/2023 5/12

Section 8. Exposure controls/personal protection

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid.

Color : Amber.

Odor : Not available.
Odor threshold : Not available.
pH : Not available.
Melting point/freezing point : Not available.
Boiling point, initial boiling : Not available.

point, and boiling range

Flash point : Not applicable.
Evaporation rate : Not available.
Flammability : Not applicable.
Lower and upper explosion : Not available.

limit/flammability limit
Vapor pressure

	Vapor Pressure at 20°C		re at 20°C	Vapor pressure at 50		
Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
w ater	17.5	2.3	-	92.258	12.3	-
Propane-1,2-diol	0.15	0.02	EU A.4	-	-	-

Relative vapor density : Not available.

Date of issue: 09/21/2023 **6/12**

Section 9. Physical and chemical properties and safety characteristics

Relative density : Not available.

Solubility(ies) : Media Result
Water Soluble

Miscible with water : Yes.

Partition coefficient: n-

octanol/water

: Not applicable.

Auto-ignition temperature

Ingredient name	°C	°F	Method
Propane-1,2-diol	371	699.8	-

Decomposition temperature : Not available.

Viscosity : Not available.

Particle characteristics

Median particle size : Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Sensitive to light. Keep away from heat. Protect from moisture.

10.5 Incompatible materials : May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products

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

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Propane-1,2-diol	LD50 Dermal LD50 Oral		20800 mg/kg 20 g/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Propane-1,2-diol	Eyes - Mild irritant Eyes - Mild irritant	Rabbit Rabbit	-	100 mg 24 hours 500 mg	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary

: Not available.

Carcinogenicity

Conclusion/Summary

: Not available.

Reproductive toxicity

Date of issue: 09/21/2023 **7/12**

Section 11. Toxicological information

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary: Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

: Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation
 Skin contact
 No known significant effects or critical hazards.
 Ingestion
 No known significant effects or critical hazards.
 No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Adverse symptoms may include the following:

pain or irritation watering redness

Inhalation: No specific data.Skin contact: No specific data.Ingestion: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate : Not available.

effects

Potential delayed effects : Not available.

Long term exposure

Potential immediate : Not available.

effects

Potential delayed effects : Not available.

Potential chronic health effects

General: No known significant effects or critical hazards.

Carcinogenicity: May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity: Suspected of causing genetic defects.

Reproductive toxicity: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Date of issue: 09/21/2023 **8/12**

Section 11. Toxicological information

Product/ingredient name	(Dermal (mg/kg)	Inhalation (gases) (ppm)	(vapors)	Inhalation (dusts and mists) (mg/ I)
ØAB and DAB plus Chromogen Solution	10799.1	N/A	N/A	N/A	N/A
Propane-1,2-diol	20000	20800	N/A	N/A	N/A
3,3-Diaminobenzidine tetrahydrochloride	500	N/A	N/A	N/A	N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
	· ·	Daphnia - <i>Daphnia magna</i> Crustaceans - <i>Ceriodaphnia</i> <i>dubia</i>	48 hours 48 hours
	Acute LC50 710000 μg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result		Dose		Inoculum
ropane-1,2-diol	OECD 301F Ready Biodegradability - Manometric Respirometry Test	98.3 % - Re	eadily - 28 days	100 mg/l [OOC	-
Product/ingredient name	Aquatic half-life		Photolysis		Biodeg	radability
Propane-1,2-diol	-		-		Readily	

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Propane-1,2-diol	-1.07	-	Low

12.4 Mobility in soil

Soil/water partition coefficient (Koc)

: Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a

Date of issue: 09/21/2023 9/12

Section 13. Disposal considerations

safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / : Not regulated. **IATA**

Special precautions for user : Transport within user's premises: always transport in closed containers that are

upright and secure. Ensure that persons transporting the product know what to do in the

event of an accident or spillage.

Transport in bulk according: Not available.

to IMO instruments

Section 15. Regulatory information

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

: TSCA 8(a) CDR Exempt/Partial exemption: Not determined **U.S. Federal regulations**

Clean Air Act Section 112

(b) Hazardous Air **Pollutants (HAPs)**

: Not listed

Clean Air Act Section 602

Class I Substances

: Not listed

Clean Air Act Section 602

Class II Substances

: Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals

(Essential Chemicals)

: Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : EYE IRRITATION - Category 2A

GERM CELL MUTAGENICITY - Category 2

CARCINOGENICITY - Category 1B

Composition/information on ingredients

Date of issue: 09/21/2023 10/12

Section 15. Regulatory information

Name	%	Classification
Propane-1,2-diol 3,3-Diaminobenzidine tetrahydrochloride	≤5	EYE IRRITATION - Category 2B ACUTE TOXICITY (oral) - Category 4 EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 2 CARCINOGENICITY - Category 1B

State regulations

Massachusetts : None of the components are listed.New York : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia: Not determined.Canada: Not determined.China: Not determined.

Japan : Japan inventory (CSCL): Not determined.

Japan inventory (ISHL): Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : Not determined.

Viet Nam : All components are listed or exempted.

Date of issue: 09/21/2023 11/12

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
	Calculation method Calculation method
, ·	Calculation method

History

Date of issue/Date of

: 09/21/2023

revision

Date of previous issue

: 05/30/2022

Version

: 7

Key to abbreviations

: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

N/A = Not available **UN = United Nations**

Indicates information that has changed from previously issued version.

Notice to reader

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

Date of issue: 09/21/2023 12/12