

	ne Material Safety Data Sheets of ANTICORASE B-96(TMB)	Doc. No.	M-E01-B3
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1) Product and company identification: Product: In Vitro Reagents Product Code: 4CBE3 Company: GENERAL BIOLOGICALS CORP.

Address of the company:

#6, INNOVATION FIRST ROAD, HSINCHU SCIENCE PARK, BAOSHAN TOWNSHIP, HSINCHU COUNTY 30076, TAIWAN, R.O.C.

Telephone Number for emergency of the company: 886-3-5779221 ext. 254

Fax number of the company: 886-3-5779227

E mail of the company: <u>Sales.group@gbc.com.tw</u>

2) Composition/information on ingredients:

2.1) Chemical Characterization: preparation

2.2) Description: Kit of components listed below with non-hazardous additions.

#	Components	Physical appearance	96 tests 4CBE3
1	HBcAg Plate	Solid in aluminium foil	1 plates
2	Anti-HBc • Peroxidase Solution	Liquid in plastic bottle	1 bottle, 8 mL
3	Anti-HBc Positive Control	Liquid in plastic bottle	1 bottle, 1.5 mL
4	HB Negative Control	Liquid in plastic bottle	1 bottle, 2.0 mL
5	TMB Substrate Solution A	Liquid in plastic bottle	1 bottle, 12 mL
6	TMB Substrate Solution B	Liquid in plastic bottle	1 bottle, 12 mL
7	Conc. Washing Solution D (20X)	Liquid in plastic bottle	1 bottle, 58 mL
8	1N Sulfuric Acid	Liquid in plastic bottle	1 bottle, 12 mL

2.3) Dangerous Components:

Component	CAS No.	Ingredient	Content	S phrases	R phrases
Anti-HBc • Perox idase Solution	Not found	Human/Animal sourced Preparation	13 %	Not found	Not found
	Not found	Horse-radish Peroxidase	Trace	Not found	Not found
	1405-41-0	Gentamycin	<0.01 %	45-36/37/39-22	61-36/38-42/43
	54-64-8	Thimerosal	0.01 %	13-28-36-45-60-61	26/27/28-33-50/53

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Component	CAS No.	Ingredient	Content	S phrases	R phrases
Anti-HBc Positive Control	Not found	Human/Animal sourced Preparation	100 %	Not found	Not found
	1405-41-0	Gentamycin	<0.01 %	45-36/37/39-22	61-36/38-42/43
	54-64-8	Thimerosal	0.01 %	13-28-36-45-60-61	26/27/28-33-50/53
HB Negative Control	Not found	Human/Animal sourced Preparation	100 %	Not found	Not found
	1405-41-0	Gentamycin	<0.01 %	45-36/37/39-22	61-36/38-42/43
	54-64-8	Thimerosal	0.01 %	13-28-36-45-60-61	26/27/28-33-50/53
TMB Substrate Solution A	54827-17-7	3,3',5,5'-tetramethyl Benzidine.	< 0.04 %	26-22-36	20/21/22-36/37/38-40
	68-12-2	N,N-dimethyl formamide	0.2 v/v %	Not found	1, 6, 26, 38, 84-94, 100, 116, 118, 119, 122
	67-56-1	Methanol	5 v/v %	7-16-24-45	11-23/25
	7775-14-6	Sodium bisulfite	< 0.01 %	Not found	1, 2, 4-7, 10, 12, 47, 49, 59, 63, 73, 82, 87-94, CK
TMB Substrate Solution B	7124-43-6	Urea Hydrogen Peroxide	< 0.05 %	17-27-26-36/37/39	8-34
	1405-41-0	Gentamycin	0.06 %	45-36/37/39-22	61-36/38-42/43
1N Sulfuric Acid	7664-93-9	Sulfuric Acid	< 6 v/v %	26-30-45	35

2.4) Additional Information

The component 1 to 4 contain materials of human or animal origin which has been inactivated at 56 ^oC for 1 hour. Since no test method offers complete assurance that infectious agents are absent, these components should be handled as potential infectious.

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) Hazards Identification:			TEORASE		Page	Pa	age 3 of 16
3.1) Hazar Ingredient	Cla	-	Routes of Entry	Health Hazards	Enviro Hazaro		Fire/explosive Hazards
Animal Sourced Preparation Potential Biohazard	Fire 0 Hazard BIO 1	Biohazard	 2. Skin contact 3. Eye contact 4. Ingestion 		biohaza should autocla before o	be	
Gentamycin Sulfate in Solution Irritation	Fire 0 Hazard	Harmful or Irritant	 Skin contact Eye contact Ingestion 	 May cause skin irritation: redness or itching. May cause systemic poisoning. May cause eye irritation/sensitization. May cause systemic poisoning. May be harmful, cause irritation to the mucous 			No (Aqueous solution)

May cause systemic

poisoning.

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Ingredient	Classification	Routes of	Health Hazards	Environmental	Fire/explosive
	& Symbol	Entry		Hazards	Hazards
Tris Buffer	Irritation	1. Skin	1. May cause irritation to	No	No
	~	contact	skin. Symptoms include	(concentration	(Aqueous
	~	2. Eye	redness, itching, and	<2 %)	solution)
	Harmful or Irritant	contact	pain.		
		3. Ingestion	2. May cause irritation,		
			redness, and pain.		
			3. May be harmful, cause		
Health	Reactivity		irritation and reddening		
1	0		to the mucous		
Ha	zard		membranes. Symptoms		
			may include nausea,		
			vomiting and diarrhea.		
			Estimated lethal dose:		
			50 gm.		
Thimerosal in	*	1. Skin	1. May be harmful through	Contains	No
Solution	Hamfalan	contact	skin contact.	mercury	(Aqueous
Harmful	Harmful or Irritant	2. Eye	2. May be harmful through	(C ₉ H ₉ HgNaO ₂ S	solution)
		contact	eyes contact.	concentration	
		3. Ingestion	3. Harmful by ingestion,	<0.1 %)	
			ORL Rat LD _{50:}		
F	ïre		75mg/kg^{-1} .		
	0				
Health 2	Reactivity				
	zard				

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Ingredient	Classification	Routes of	Health Hazards	Environmental	Fire/explosive
	& Symbol	Entry		Hazards	Hazards
Horse-radish peroxidase Solution	Irritation	1. Skin contact 2. Eye	1. There is at present no information or indication of hazardous	No (concentration is very low)	No (Aqueous solution)
Solution	Harmful or Irritant	contact 3. Ingestion	property. 2. May cause irritation.	is very low)	solution)
Health 1	A Rating Fire 0 Reactivity 0 lazard I		 May cause allergic reaction to a small percentage of the population who exhibit an allergic reaction to enzymes. 		
· ·	Harmful or	1. Skin	Harmful, irritation, should	No	No
Tetramethyl - Benzidine Solution	and the second sec	contact 2. Eye contact 3. Ingestion	be handled as a potential carcinogen.	(concentration <0.1 %)	(Aqueous solution containing dimethyl sulfoxide and methyl alcohol)

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Ingredient	Classification	Routes of	Health Hazards	Environmental	Fire/explosive
	& Symbol	Entry		Hazards	Hazards
Methanol	Irritation	1. Inhalation	1. Cause irritation to	No	No
Aqueous	~	2. Skin	respiratory tract.	(Concentration	(Aqueous
Solution	~	contact	Affects central nervous	<45 v/v %)	solution)
	Harmful or Irritant	3. Eye	system, especially optic		
	Toxic	contact	nerve.		
	G	4. Ingestion	Cause dizziness,		
			nauseam muscle		
	Toxic or Very Toxic	_	weakness, narcosis,		
			respiratory failure.		
	Fire		2. Cause irritation to skin.		
			3. Cause irritation to eyes.		
Health 1	Reactivity 0		4. Harmful if digested.		
	Hazard		Affects central nervous		
			system, especially optic		
	\checkmark		nerve.		
			Cause dizziness,		
			nauseam muscle		
			weakness, narcosis,		
			respiratory failure.		
			Can produce blindness		
			(100 ml can be total).		

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Ingredient	Classification	Routes of	Health Hazards	Environmental	Fire/explosive
	& Symbol	Entry		Hazards	Hazards
NN-dimethyl formamide	Harmful or Irritant	 Inhalation Skin contact 	 Irritation, nausea, vomiting, headache, dizziness. 	No (concentration <0.2 v/v%)	No (Aqueous solution)
Health	Fire 2 Reactivity 0 lazard	3. Eyecontact4. Ingestion	 Irritation, allergic reactions, blisters, rash, itching, nausea, vomiting, diarrhea, chest pain, headache, drowsiness, blood disorders. Irritation, blurred vision Nausea, vomiting, diarrhea, stomach pain, drowsiness. 		
Urea • Hydrogen peroxide Aqueous Solution (< 0.1%)	Oxidizing	 Skin contact Eye contact Ingestion Inhalation 	 Harmful through skin contact. Harmful through eyes contact. Harmful by ingestion, Harmful by inhalation 	No (concentration < 0.1%)	No (Aqueous solution)
	Reactivity 3* Hazard Oxy 60% =1				

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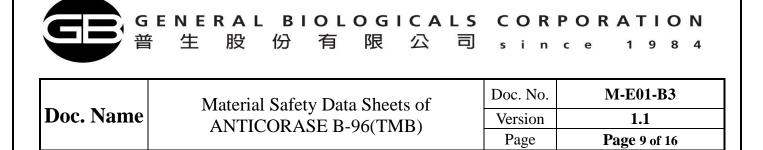
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Ingredient	Classification	Routes of	Health Hazards	Environmental	Fire/explosive
	& Symbol	Entry		Hazards	Hazards
Dilute Sulfuric Acid Aqueous Solution (<6 v/v %) Corrosive			 May cause severe irritation of the respiratory tract with sore throat, coughing, ahortness of 	Hazards No (concentration < 6 v/v %)	-



3.2) Classification System:

The classification is according to GLOBALLY HARMONISED SYSTEM FOR THE CLASSIFICATION AND LABELLING OF CHEMICALS (May 2001) and NFPA hazard labels.

4) First-aid Measures:

General Information	No special measures required.		
Inhalation	Supply fresh air. Seek medical advice in case of complaints.		
Ingestion	Rinse mouth thoroughly with water. Seek medical advice in case of complaints.		
Contact with eyes	Wash with copious amounts of water. Seek medical advice in case of complaints.		
Contact with skin	Wash thoroughly with water. Seek medical advice in case of complaints.		
Protection of First-aids	Wearing of protective gloves and avoiding the generation of aerosols.		

5) Fire Fighting Measures:

Suitable extinguishing agents: CO₂, powder or water spray.

Fight larger fires with water spray or alcohol resistant foam.

Special Protective Equipment: No special measures required. Specific Hazards:

Components	Specific Hazards
1. HBcAg Plate	CO.
2. Anti-HBc • Peroxidase Solution	CO, NO _x , SO _x , Hg.
3. HB Negative Control	$CO, NO_x, SO_x, N_2.$
4. Anti-HBc Positive Control	$CO, NO_x, SO_x, N_2.$
5. Washing Solution D (20X) Concentrate	CO.
6. TMB Substrate Solution A	CO, NO _x , SO _x .
7. TMB Substrate Solution B	СО
8. 1N Sulfuric Acid	SO _x .



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6) Accidental Release Measures:

Personal Precautions: Wear protective gloves and avoid the generation of aerosols.

Keep unprotected persons away.

Ensure adequate ventilation.

Environmental Precautions: Treated (inactivated) as biological hazardous contamination.

Methods for Cleaning Up:

Components	Methods for Cleaning Up
2. Anti-HBc • Peroxidase Solution	Inactivated with Sodium Hypochlorite Solution
3. HB Negative Control	prior to clean with plenty of water.
4. Anti-HBc Positive Control	
5. Washing Solution D (20X) Concentrate	Clean with plenty of water.
6. TMB Substrate Solution A	
7. TMB Substrate Solution B	
8. 1N Sulfuric Acid	

7) Handling and Storage:

7.1) Handling:

Technical Measures: No special measures required.

Precautions: Handled as biohazards.

Wear protective gloves and avoid the generation of aerosols.

Keep TMB Solution A away from fire sources.

Specific Safe Handling Advice: No special measures required.

7.2) Storage:

Technical Measures: No special measures required.

Storage conditions: Store in 2 \sim 8 °C.

Incompatible products: No special measures required.

Packaging Materials: No special measures required.

8) Exposure Control/Personal Protection:

8.1) Engineering Measures:

Additional Information about design of technical facilities: No, see item 7).

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8.2) Specific Control Parameters:

Ingredients with limit values that require monitoring at the workplace: No. **Additional Information:** No special measures required.

8.3) Personal Protective equipment:

Respiratory Protection: No special measures required.Hand Protection: Wear protective gloves.Eye Protection: No special measures required.Skin and Body Protection: Wear protective gown.

8.4) Hygiene Measures: Handled as biohazards.

9) Physical and chemical Properties:

9.1) Physical Properties:

Component	Form	Color	Odor	m.p.	b.p.	Flash Point	Self-ignition
1. HBsAg Plate	solid	colorless	odorless	N/A	N/A	N/A	N/A
2. Anti-HBc •	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
Peroxidase Solution		colorless	odorless			determined	
2 JID Nagative Control	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
3. HB Negative Control		colorless	odorless			determined	
4. Anti-HBc Positive	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
Control		colorless	odorless			determined	
5. Washing Solution D	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
(20X)		colorless	odorless			determined	
6. TMB Substrate	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
Solution A		colorless	odorless			determined	
7. TMB Substrate	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
Solution B		colorless	odorless			determined	
8. 1N Sulfuric Acid	Liquid	Nearly	Nearly	Not determined	Not determined	Not	Not determined
		colorless	odorless			determined	

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9.2) Chemical Properties:			

Component	Danger of explosion	Density	Solubility in water	Organic Solvents Content	Water content
1. HBcAg Plate	No	N/A	N/A	0	0
2. Anti-HBc • Peroxidase Solution	No	Not determined	Miscible	0	Aqueous Solution
3. HB Negative Control	No	Not determined	Miscible	0	Aqueous Solution
4. Anti-HBc Positive Control	No	Not determined	Miscible	0	Aqueous Solution
5. Washing Solution D (20X)	No	Not determined	Miscible	0	Aqueous Solution
6. TMB Substrate Solution A	No	Not determined	Miscible	<5%	Aqueous Solution
7. TMB Substrate Solution B	No	Not determined	Miscible	0	Aqueous Solution
8. 1N Sulfuric Acid	No	Not determined	Miscible	0	Aqueous Solution

10) Stability and Reactivity:

10.1) Thermal decomposition/Conditions to be avoid:

Decomposition will not occur if used and stored according to the package insert.

10.2) Materials to be avoided:

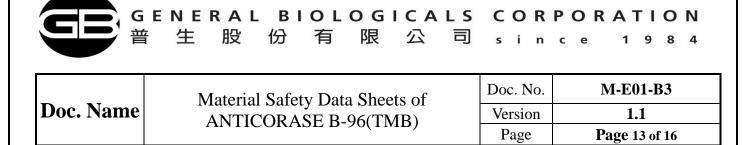
Please use the kit in accordance with the package insert.

10.3) Dangerous Reactions:

No dangerous reactions known.

10.4) Dangerous decomposition products:

Components	Specific Hazards
1. HBcAg Plate	CO.
2. Anti-HBc • Peroxidase Solution	CO, NO _x , SO _x , Hg.
3. HB Negative Control	$CO, NO_x, SO_x, N_2.$
4. Anti-HBc Positive Control	$CO, NO_x, SO_x, N_2.$
5. Washing Solution D (20X)	CO.
6. TMB Substrate Solution A	CO, NO _x , SO _x .
7. TMB Substrate Solution B	СО
8. 1N Sulfuric Acid	SO _x .



11) Toxicological Information:

11.1) Acute Toxicity:

Acute toxicity will not occur if used and stored according to the package insert.

11.2) Local Effects:

Components	Local Effects
1. HBcAg Plate	No.
2. Anti-HBc • Peroxidase	May cause irritation to skin, mucous membranes and eyes.
Solution	
3. HB Negative Control	May cause irritation to skin, mucous membranes and eyes.
4. Anti-HBc Positive Control	May cause irritation to skin, mucous membranes and eyes.
5. Washing Solution D (20X)	No.
6. TMB Substrate Solution A	May cause irritation to skin, mucous membranes and eyes.
7. TMB Substrate Solution B	May cause irritation to skin, mucous membranes and eyes.
8. 1N Sulfuric Acid	May cause irritation to skin, mucous membranes and eyes.
	May cause chemical burns to the respiratory tract.

11.3) Sensitization:

Components	Sensitization
1. HBcAg Plate	No.
2. Anti-HBc • Peroxidase	May cause sensitization to mucous membranes and eyes.
Solution	
3. HB Negative Control	May cause irritation to skin, mucous membranes and eyes.
4. Anti-HBc Positive Control	May cause irritation to skin, mucous membranes and eyes.
5. Washing Solution D (20X)	No.
6. TMB Substrate Solution A	May cause irritation to mucous membranes and eyes.
7. TMB Substrate Solution B	No.
8. 1N Sulfuric Acid	No.

11.4) Chronic Toxicity or Long Term Toxicity:

Components	Chronic Toxicity or Long Term Toxicity
1. HBcAg Plate	No.
2. Anti-HBc • Peroxidase	May cause systemic poison.
Solution	

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Components	Chronic Toxicity or Long Term Toxicity
3. HB Negative Control	May cause systemic poison.
4. Anti-HBc Positive Control	May cause systemic poison.
5. Washing Solution D (20X)	No.
6. TMB Substrate Solution A	May affects central nervous system.
7. TMB Substrate Solution B	No.
8. 1N Sulfuric Acid	May affects central nervous system.

11.5) Carcinogenicity/Mutagenicity:

Components	Carcinogenicity/Mutagenicity
1. HBcAg Plate	Not a carcinogen/mutagen.
2. Anti-HBc • Peroxidase	Not a carcinogen/mutagen.
Solution	
3. HB Negative Control	Not a carcinogen/mutagen.
4. Anti-HBc Positive Control	Not a carcinogen/mutagen.
5. Washing Solution D (20X)	Not a carcinogen/mutagen.
6. TMB Substrate Solution A	May be a carcinogen/mutagen.
7. TMB Substrate Solution B	Not a carcinogen/mutagen.
8. 1N Sulfuric Acid	IARC Category 1

11.6) Additional Toxicological Information:

Not found.

12) Ecological Information (Possible environmental Effects behavior and fate):

2N Sulfuric Acid: Water hazard class 2: hazardous for water.

Other liquid components: Water hazard class 1: slightly hazardous for water.

Do not allow undiluted liquid components or large quantities of the liquid components to reach ground water, water course or sewage system.



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13) Disposal Considerations:

Components	Recommended Disposal Methods for		
	components/contaminated components/used components.		
1. HBcAg Plate	Treated as potential infectious materials before disposal.		
2. Anti-HBc • Peroxidase	Treated as potential infectious materials before disposal.		
Solution			
3. HB Negative Control	Treated as potential infectious materials before disposal.		
4. Anti-HBc Positive Control	Treated as potential infectious materials before disposal.		
5. Washing Solution D (20X)	Diluted with large quantities of water.		
6. TMB Substrate Solution A	No special measures required.		
7. TMB Substrate Solution B	No special measures required.		
8. 2N Sulfuric Acid	Neutralized with base and/or diluted with large quantities of		
	water.		
Specimens	Treated as potential infectious materials before disposal.		

14) Transport Information

14.1) Land Transport ADR/RID:

2N Sulfuric Acid: ADR/RID Class: 8 Corrosive Substances UN Number: UN2796 Packaging Group: II Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., sulfuric acid. Other components: ADR/RID Class: None

14.2) Maritime Transport IMDG:

2N Sulfuric Acid: IMDG Class: 8 UN Numbe: UN2796 Packaging Group: II Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., sulfuric acid. Other components: IMDG Class: None

14.3) Air Transport ICAO-Ti and IATA_DGR:

2N Sulfuric Acid: ICAO/IATA Class: 8 UN Number: UN2796



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Packaging Group: II Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s., sulfuric acid. Other components: ICAO/IATA Class: None

15) Regulations:

15.1) Product Related Hazard Information:

Observe the general safety regulations when handling the kit, its components and specimens.

15.2) Labeling according to EU guidelines/NFPA chemical Hazard Labels:

The kit including its components will be classified and marked in accordance with EU Directives/NFPA Chemical Hazard Labels.

15.3) Information about limitation of use:

The kit and its components are for in vitro diagnosis use and for professional use only.

15.4) Code letter, risk phrases, safety phrases and hazard designation of the kit and its components: Please see 2.3) and 3.1) of this MSDS.

16) Other Information:

This MSDS is based on our present knowledge. However, it is intended only as a guide to the appropriate precautionary handling of the kit and its components for professional use. Individuals receiving this MSDS must exercise their independent judgment in determining its appropriateness for a particular purpose