SAFETY DATA SHEET
In accordance with ISO 11014: 2009

Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product code	1-DFH-001
Product name	ITEA Der f 1 ELISA Kit, High Sensitive
	A. Capture antibody coated microplate
	B. Standard (lyophilized)
	C. Biotin-labeled antibody
	D. Enzyme-labeled streptavidin
	E. TMB Solution
	F. Stop solution
	G. Dilute solution
	H. Washing solution (20x concentrated)

Manufacture/supplier

Manufacture/supplier	Institute of Tokyo Environmental Allergy, ITEA Inc.
Department in Charge	Quality Assurance Sec.
Address	1-33-18 Hakusan Bunkyo-ku Tokyo, 113-0001 Japan
Telephone number	+81-3-3526-2031
Fax number	+81-3-3526-2032
e-mail address	reag-info@itea.jp
Emergency telephone number	+81-3-3526-2031

Recommended use and restriction on use

Recommended use	Research reagent
Restrictions on use	This product should not be used for applications other than those recommended.

Section 2: HAZARDS IDENTIFICATION

Important hazards

GHS classification

Physical Hazards	Not classified
Health Hazards	
A. Capture antibody coated microplate	Not classified
B. Standard (lyophilized)	Not classified
D. Enzyme-labeled streptavidin	Not classified
E. TMB Solution	Not classified
G. Dilute solution	Not classified
H. Washing solution (20x concentrated)	Not classified
C. Biotin-labeled antibody	
Skin sensitization	Category 1A
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Specific target organ toxicity (repeated exposure):	Category 2 (the liver)
F. Stop solution	
Skin irritation/corrosion:	Category 1
Eye damage/irritation:	Category 1
Specific target organ toxicity (single exposure):	Category 2 (respiratory system)
Specific target organ toxicity (repeated exposure):	Category 2 (respiratory system)

Environmental Hazards Not classified

Label Elements

A. Capture antibody coated microplate
B. Standard (lyophilized)
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Pictogram	Not classified
Signal word	Not classified
Hazard Statements	Not classified
Precautionary Statements	Not classified

C. Biotin-labeled antibody

Pictogram

Signal word	Danger
Hazard Statements	Danger of causing allergic skin reactions. Danger of cancer. May damage fertility or the unborn child. May cause damage to specific target organ through prolonged or repeated exposure (the liver).
Precautionary Statements	
[Prevention]	Obtain an instruction manual before use. Do not handle it until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves. Contaminated work clothes must not leave the work area.
[Emergency response]	Special treatment is required. Get medical advice/attention if you feel unwell. IF exposed or concerned: Call a POISON CENTER/doctor. IF ON SKIN: Rinse skin with large amount of water. IF SKIN IRRITATION or RASH occur: Seek medical advice/attetion. Wash contaminated clothing before reuse.
[Storage]	No information
[Disposal]	Dispose of contents/container in accordance with related laws and local/regional regulations.

F. Stop solution

Pictogram

Signal word	Danger
Hazard Statements	Causes severe skin burns and eye damage. Causes serious eye damage. May cause damage to respiratory system. May cause damage to respiratory system through prolonged or repeated exposure.
Precautionary Statements	
[Prevention]	Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
[Emergency response]	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do.
Continue rinsing.
IF exposed or concerned: Call a POISON CENTER/doctor.
Immediately call a POISON CENTER/doctor.
Get medical advice/attention if you feel unwell.
Wash contaminated clothing before reuse.

[Storage] Store locked up.

[Disposal] Dispose of contents/container in accordance with related laws and local/regional regulations.

Other hazards No information

Important symptoms and an outline of an anticipated emergency

A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
C. Biotin-labeled antibody	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information

F. Stop solution

Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause damage to respiratory system.
May cause damage to respiratory system through prolonged or repeated exposure.

Section 3: COMPOSITION/ INFORMATION ON INGREDIENTS

Substance/Mixture

Mixture

Compositions

This component contains no hazardous ingredients except for the followings.

C. Biotin-labeled antibody

Chemical name/ Generic name	CAS number	Concentration (wt %)
Glycerol	56-81-5	≤ 54.05
Stabilizer for labeled-antibody	-	≤ 43.24

F. Stop solution

Chemical name/ Generic name	CAS number	Concentration (wt %)
Water	7732-18-5	95.32
Sulfuric acid	7664-93-9	4.68

The following components do not contain hazardous ingredients.

A. Capture antibody coated microplate
B. Standard (lyophilized)
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Special remarks

Stabilizer for labeled-antibody contains the followings, while all the ingredients in it are not disclosed by the maker.

Ethanol (CAS number: 64-17-5) 1.2% (< 0.52% in this product)

2 -Methyl-4-isothiazolin-3-one (CAS number: 2682-20-4) 0.02% (< 0.009% in this product)
5-Bromo-5-nitro-1,3-dioxane (CAS number：30007-47-7） 0.02% (< 0.009% in this product)

Section 4: FIRST-AID MEASURES

First aid procedures

IF INHALED	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, get medical advice/attention immediately and at rest.
IF ON SKIN	Rinse with plenty of water. If abnormality, immediately get medical advice/attention.
IF IN EYES	Immediately rinse cautiously with water for 15 - 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately get medical advice/attention.
IF SWALLOWED	Rinse mouth. Immediately get medical advice/attention.

Anticipated acute effects, anticipated delayed effects and most important symptoms/effects

A. Capture antibody coated microplate	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information
B. Standard (lyophilized)	May cause skin, eyes and respiratory system irritation or cause allergic reaction if contact with or inhaled this product.
C. Biotin-labeled antibody	May cause allergic reaction if contact with this product.
F. Stop solution	Causes severe skin burns and eye damage. Causes serious eye damage. May cause damage to respiratory system. May cause damage to respiratory system through prolonged or repeated exposure.

Protection of first-aiders

Wear appropriate eyes and skin protective equipment.

Note to an attending physician

A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
F. Stop solution	No information
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information
C. Biotin-labeled antibody	May cause allergic reaction if contact with this product. Product with carcinogenic potential. Notify a physician of the name of the exposed substance.

Section 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

In case of fire, use water spray, dry extinguishant, fire foam or carbon dioxide.

Unsuitable extinguishing media

No restrictions on extinguishing media for this product.

Specific hazards arising from the chemical

A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information
C. Biotin-labeled antibody	Fire may produce irritating, toxic and/or corrosive gases.
F. Stop solution	In case of fire, toxic decomposition products may be generated.

Take action from windward.
Keep out except responsible personnel.
Move container to a safe area if it can be done without risk.

Protective equipment and precautions for firefighters

Fire fighters should wear appropriate protective equipment and fireproof clothing.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear suitable protective equipment described in section "Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION".

Environmental precautions

Prevent to flowing into drains, sewers, basements or closed areas.

Methods and materials for containment and cleaning up

C. Biotin-labeled antibody
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Absorb into liquid absorbent, etc., and collect in an empty container.

B. Standard (lyophilized)

Sweep up scattered materials or vacuum them using a vacuum cleaner so as not to cause dust then collect them into an empty container.

F. Stop solution

Wear protective equipments and stop the leak after confirming that this product is not dangerous.
In case of small amounts, wipe off spilled material with waste or wiping cloth and collect it in an adequate waste container.
If case of large amounts, prevent leakage and enclose by embankment.

Secondary disaster prevention measures

No information

Section 7: HANDLING AND STORAGE

Handling

A. Capture antibody coated microplate
B. Standard (lyophilized)
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Technical measures	Install appropriate equipment and wear suitable protective apparatus described in section "Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION".
Precautions such as local /total ventilation	Handle the product in a well-ventilated area. In case of mist/vapours generation, use local ventilation.
Precautions for safe handling	Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid the generation of dust regarding B. Standard (lyophilized).
Prevention of contact	Avoid direct sunlight, high temperature and high humidity.

C. Biotin-labeled antibody

Technical measures	Install appropriate equipment and wear suitable protective apparatus described in section "Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION". Do not inhale dust/fume/gas/mist/vapors/spray. Inhalation or contact may cause irritation or inflammation of skin or eyes.
Precautions such as local /total ventilation	Handle the product in a well-ventilated area. In case of mist/vapours generation, use local ventilation.
Precautions for safe handling	Do not eat, drink or smoke when using this product. Wear protective gloves. Wash hands thoroughly after handling.
Prevention of contact	Avoid direct sunlight, high temperature and high humidity. Refer to "Section 10: Stability and Reactivity".

F. Stop solution

Technical measures	Install appropriate equipment and wear suitable protective apparatus described in section "Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION".
Precautions such as local /total ventilation	Handle the product in a well-ventilated area. In case of mist/vapours generation, use local ventilation.
Precautions for safe handling	Do not handle container violently such that wiping out or dragging. Prevent spill, leak or splash of the product to avoid vapour generation. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.
Prevention of contact	Avoid direct sunlight or high temperature. Avoid contact with oxidizing agents or reducing agents.

Storage

Technical measures	Store in a biomedical refrigerator at 2 - 8°C.
Incompatible materials and mixtures	
A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
C. Biotin-labeled antibody	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
F. Stop solution	Oxidizing agents, reducing agents
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information
Conditions for safe storage	Avoid direct sunlight. Store in a cool dark place.
Packing material	
A. Capture antibody coated microplate	Aluminium pouch with desiccant
B. Standard (lyophilized)	Polypropylene
C. Biotin-labeled antibody	Polypropylene
D. Enzyme-labeled streptavidin	Polypropylene
E. TMB Solution	High density polyethylene
F. Stop solution	High density polyethylene
G. Dilute solution	Polyethylene
H. Washing solution (20x concentrated)	Polyethylene

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration

Occupational Exposure Limits

A. Capture antibody coated microplate
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Does not contain ingredients for which occupational exposure limits have been established.

B. Standard (lyophilized)

ACGIH TLV-TWA (2018)	3 mg/m^3	(respirable particles)
	10 mg/m^3	(inhalable particles)
ACGIH TLV-STEL (2018)	Not applicable	

* This item is not an acceptable concentration for sensitization.

C. Biotin-labeled antibody

ACGIH TLV-STEL (2018)	1000 ppm	(Ethanol)

F. Stop solution

ACGIH TLV-TWA (2018)	0.2 mg/m^3	(Sulfuric acid)
ACGIH TLV-STEL (2018)	Not applicable	

Engineering controls

In a work place where dusts generate, ensure to use sealed instrument or local ventilation.
Under high temperature or in case of mist generation, use ventilation.
Install an eyewash and safety shower in the workplace where this product is stored or handled.

Personal protective equipment

Respiratory protection	Wear an appropriate protective mask. Especially, wear gas mask for sulfurous acid gas as necessary regarding F. Stop solution.
Hand protection	Wear protective gloves.
Eye protection	Wear safety glasses .
Skin and body protection	Wear protective safety cap, lab coat, apron or safety shoes if necessary.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, form and colour)

A. Capture antibody coated microplate	Pre-blocked and coated microplates
B. Standard (lyophilized)	White powder
C. Biotin-labeled antibody	Clear and colourless liquid
D. Enzyme-labeled streptavidin	Clear and colourless liquid
E. TMB Solution	Clear and colourless liquid
F. Stop solution	Clear and colourless liquid
G. Dilute solution	Clear and colourless liquid
H. Washing solution (20x concentrated)	Clear and colourless liquid
Odour	No information
Odour threshold	No information
pH	No information
A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	7.2 - 7.6 (after dissolving with distilled water)
C. Biotin-labeled antibody	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
F. Stop solution	Strong acid

G. Dilute solution	7.2 - 7.6
H. Washing solution (20x concentrated)	7.2 - 7.6 (after diluting with distilled water)
Melting point/ freezing point	No information
Boiling point, initial boiling point and boiling range	No information
Flashpoint	No information
Evaporation rate	No information
Flammability	No information
Upper/lower explosive limits	No information
Vapour pressure	No information
Vapour density	No information
Specific gravity	No information
Solubility	Every component other than A. Capture antibody coated microplate is miscible with water. B. Standard (lyophilized) may cause turbidity.
***n* -octanol/water partition coefficient**	No information
Auto-ignition temperature	No information
Decomposition temperature	No information
Viscosity	No information
Other information	No information

Section 10: STABILITY AND REACTIVITY

Chemical stability	Stable under normal handling condition.
Hazardous reactions	No hazardous reaction expected under normal handling.
Conditions to avoid	Direct sunlight, high temperature, high humidity, heat and flames
Incompatible materials	
A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
C. Biotin-labeled antibody	No information
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
F. Stop solution	Oxidizing agents, reducing agents
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information
Hazardous decomposition products	
A. Capture antibody coated microplate	No information
B. Standard (lyophilized)	No information
C. Biotin-labeled antibody	Carbon oxides, nitrogen oxides
D. Enzyme-labeled streptavidin	No information
E. TMB Solution	No information
F. Stop solution	In case of fire, toxic decomposition products may be generated.
G. Dilute solution	No information
H. Washing solution (20x concentrated)	No information

Section 11: TOXICOLOGICAL INFORMATION

Toxicological information for product No information

Toxicological information for ingredients

C. Biotin-labeled antibody

Ethanol

Acute toxicity (oral):	Rat LD_{50} = 10,470 mg/kg (OECD Test Guideline 401)
Acute toxicity (inhalation: vapor):	Rat 4h LC_{50} = 124.7 mg/L (OECD Test Guideline 403)
Skin irritation/corrosion:	Skin - Rabbit Result: No skin irritation - 24 h (OECD Test Guideline 404)
Eye damage/irritation:	Eyes - Rabbit Result: Causes serious eye irritation.

(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative (OECD Test Guideline 406)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances:
Methanol

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: dominant lethal test
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 478
Result: Positive results were obtained in some in vivo tests.

F. Stop solution
Sulfuric acid

Acute toxicity (oral): Rat LD_{50} = 2,140 mg/kg

Acute toxicity (inhalation: dust/mist): Rat 4h LC_{50} = 0.375 mg/L

Skin irritation/corrosion: Since pH of concentrated sulfuric acid was 1 or less, it was judged to be a corrosive substances with the GHS classification standards.

Eye damage/irritation: There is a description that the critical damage to the eye accompanied by solutions of anterior chamber of eye was acknowledged in example of accident in human. Furthermore, there is a description that moderate irritation with 5% liquid and severe irritation with 10% liquid were acknowledged to the eye of a rabbit.

Specific target organ toxicity (single exposure): There are reports that in the inhalation exposure of low concentration in humans, airway irritation such as cough and breath shortness is identified, and at high exposure levels, acute effects such as cough, breath shortness and hemoptysis shedding etc., and permanent effects such as functional depression of lungs, fibrosis and emphysema were identified, and that hemorrhage in lungs and dysfunction were identified by 8-hour inhalation exposure in guinea pigs.

Specific target organ toxicity (repeated exposure): In the 28-day inhalation exposure test using rat, cell proliferation in laryngeal mucosa is acknowledged in guidance value of Category 1, and in the 14 to 139-day repetition inhalation exposure test using the guinea pigs of the concentration of guidance value within the limits of Category 1, respiratory and lung disorder, such as nasal-septum dropsy, pulmonary emphysema, atelectasis, hyperemia, dropsy, bleeding and thrombosis of bronchioles are recognized, and further in the 78-week inhalation exposure test using a cynomolgus, histological change as hyperplasia of a cell, the wall thickening, etc. in bronchioles of lungs was acknowledged in the dosage (0.048 mg/L, 23.5 Hr/Day) of the range of the guidance value of Category 1.

Section 12: ECOLOGICAL INFORMATION

Ecological information for product

Ecotoxicity: No information

Persistence and degradability	No information
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	No information

Ecological information for ingredients

C. Biotin-labeled antibody

Ethanol

Ecotoxicity (acute)	Toxicity to fish Flow-through test LC_{50} - Pimephales promelas (fathead minnow) - 15,300 mg/L - 96 h (US-EPA) Toxicity to daphnia and other aquatic invertebrates Static test LC_{50} - Ceriodaphnia dubia (water flea) - 5,012 mg/L - 48 h Remarks: (ECHA) Toxicity to algae Static test ErC_{50} - Chlorella vulgaris (Fresh water algae) - 275 mg/L - 72 h (OECD Test Guideline 201) Toxicity to bacteria Static test IC_{50} - activated sludge - > 1,000 mg/L - 3 h (OECD Test Guideline 209)
Ecotoxicity (chronic)	Toxicity to fish Semi-static test NOEC - Danio rerio (zebra fish) - 250 mg/L - 120 h Remarks: (ECHA) Semi-static test NOEC - Daphnia magna (Water flea) - 9.6 mg/L - 9 d Remarks: (ECHA) Toxicity to daphnia and other aquatic invertebrates Semi-static test NOEC - Daphnia magna (Water flea) - 9.6 mg/L - 9 d Remarks: (ECHA)
Persistence and degradability	Biodegradability Aerobic - Exposure time 15 d Result: ca.95% - Readily biodegradable. (OECD Test Guideline 301E) Biochemical Oxygen Demand (BOD) 930 - 1,670 mg/g, Remarks: (Lit.) Theoretical oxygen demand 2,100 mg/g, Remarks: (Lit.)
Bioaccumulative potential	Due to the distribution coefficient *n* -octanol/water, accumulation in organisms is not expected.
Mobility in soil	No information
Hazardous to the ozone layer	No information

F. Stop solution

Sulfuric acid

Ecotoxicity (acute)	Fish (Bluegill) 96 h LC_{50} = 16 - 28 mg/L
Ecotoxicity (chronic)	No information
Persistence and degradability	No information
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

Section 13: DISPOSAL CONSIDERATIONS

Remaining product

A. Capture antibody coated microplate
B. Standard (lyophilized)
C. Biotin-labeled antibody
D. Enzyme-labeled streptavidin
E. TMB Solution
G. Dilute solution
H. Washing solution (20x concentrated)

Dispose of waste in accordance with applicable local, regional and international regulations and standards.

F. Stop solution

Dispose of waste in accordance with applicable local, regional and international regulations and standards.
Neutralize with slaked lime, then discard it according to relevant law regulations.
In the absence of an appropriate processing facility, we consign processing to a waste disposal contractor approved by the prefectural governor.

Contaminated containers and packaging

When dispose of empty containers, contents should be removed completely and be recycled or dispose of in compliance with related laws and local regulations.

Section 14: TRANSPORT INFORMATION

International regulation

UN number	2796
UN proper shipping name	SULPHURIC ACID with not more than 51% acid or BATTEERY FLUID, ACID
Transport hazard class(es)	8
Subsidiary risk	-
Packing group	II
Marine pollutant	Not applicable
IBC Code	Not applicable

When transporting, confirm no damage to containers. Avoid handling violently or leaking wet. Load to prevent fall or falling down containers and take preventive measures of collapse.

Section 15: REGULATORY INFORMATION

US Federal regulation

TSCA inventory:	Registered	Ethanol Sodium chloride Potassium dihydrogenphosphate Potassium chloride 3(2H)-Isothiazolone, 2-methyl- Sulfuric acid [1,1'-Biphenyl]-4,4'-diamine, 3,3',5,5'-tetramethyl-

EU regulation

The product and its ingredients are not regulated by specific provisions related to protection of human health or the environment at EU level, e.g. not considered as SVHCs or POPs.

(EC) 1272/2008 (Annex VI, Table 3): Listed (Sulfuric acid, Ethanol)

Section 16: OTHER INFORMATION

Reference

Information of Institute of Tokyo Environmental Allergy, ITEA Inc.
NITE GHS classification results (http://www.safe.nite.go.jp/ghs/list.html). (2018)
ACGIH, American Conference of Governmental Industrial Hygienists (2018) TLVs and BEIs.

[Disclaimer]

This SDS has been prepared on the basis of laws, regulations and information available at this time. It is user's responsibility to modify or update any contents in this SDS regarding information on hazardous properties and/or instruction for safe handling of the product when they become available. Precautionary measures in this SDS are only applicable for normal handling conditions and it is necessary to take appropriate additional measures to ensure safe handling which depend on your specific use conditions or situations.