MATERIAL SAFETY DATA SHEET

Based on the ANSI's form

Prepared by Reagent & Diagnostics Department

Tokiwa Chemical Industries CO., Ltd.

LAS ELISA KIT (Microplate)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's name: Tokiwa Chemical Industries CO., Ltd.
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Phone No.: +81-3-3940-7768
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Product Name: LAS ELISA KIT (Microplate)

2. COMPOSITION/INFORMATION ON INGREDIENTS

LABEL/Ingredient	CAS Number	Content
[1]MoAb-Coated Microplate (1 Plate/Kit)		
①Monoclonal antibodies against LAS	—	N/A
[2]LAS Standard Concentrate (4 mL/Vial/Kit)		
②Sodium *linear*-Dodecylbenzenesulfonate	2211-98-5	40 μg/Vial
③Methanol	67-56-1	0.8 mL/Vial
[3]Antigen-enzyme Conjugate Powder (Not Applicable)		
④Antigen conjugate to HRP	9003-99-0	N/A
⑤Maltose monohydrate	6363-53-7	20 mg/Vial
⑥Stabilizer	N/A	0.02 μg/Vial
⑦Bactericide	—	0.02 μL/Vial
⑧BSA	9048-46-8	300 μg/Vial
[4]Buffer Solution (8 mL/Vial×2/Kit)		
Phosphate buffered saline	—	—
⑦Bactericide	—	1.6 μL/Vial
⑨Surfactant	N/A	1.6 mg/Vial
[5]Uncoated Microplate (1 Plate/Kit)		
[6]Wash Solution (6-fold concentration) (1 Pack/Kit)		
Phosphate buffered saline powder	—	—
[7]Chromogen Solution (250 μL/Vial/Kit)		
⑩Chromogen	N/A	2.5 mg/Vial
⑪DMF	68-12-2	250 μL/Vial
[8]Substrate Solution (15 mL/Vial/Kit)		
Citrate buffer	—	—
⑦Bactericide	—	1.5 μL/Vial
⑫Substrate	N/A	5.25 mg/Vial
[9]Stop Solution (15 mL/Vial/Kit)		
⑬Phosphoric Acid	7664-38-2	735 mg/Vial

N/A: not applicable

	SYNONYMS	FORMULA	Mw
①	Antibodies, monoclonal (GOT-935-54); Immunoglobrin	Protein (Antibody)	—
②	Sodium p-dodecylphenylsulfonate	$C_{12}H_{25}C_6H_4SO_3Na$	348.38
③	Methyl alcohol	CH_3OH	32.04
④	Horse radish peroxidase	Protein (Enzyme)	—
⑤	D-Glucose, Maltose monohydrate	$C_{12}H_{22}O_{11}\cdot H_2O$	360.32
⑧	Bovine serum albumin; Albumins, blood serum	Protein (Albumin)	—
⑪	Dimethylformamide, DMF	C_3H_7NO	73.11
⑬	Phosphoric acid	H_3PO_4	98.00

	EINECS	ENCS #	ECL Serial #	TSCA	DSL	AICS	RTEC #
①	289-554-4	unlisted	unlisted	unlisted	unlisted	unlisted	unlisted
②	218-654-2	unlisted chemical name, 3-1884X, 3-1906X, 3-1949X	unlisted	listed	listed	listed	unlisted
②*	248-289-4	3-1884X, 3-1907X	KE-12947	listed	listed	listed	DB6600000
③	200-659-6	2-201	KE-23193	listed	listed	listed	PC1400000
④	232-668-6	unlisted	KE-28159	listed as XU	unlisted	listed	unlisted
⑤	unlisted	8-64X	Unlisted	unlisted	unlisted	listed	unlisted
⑤**	200-716-5	8-64	KE-17721	listed	listed	listed	OO5250000
⑥	—	—	—	listed	listed	listed	—
⑦	—	—	—	unlisted	unlisted	unlisted	—
⑧	232-936-2	unlisted	unlisted	listed as XU	listed	listed	unlisted
⑨	—	—	—	listed as XU	listed	listed	—
⑩	—	—	—	listed	listed	listed	—
⑪	200-679-5	2-680	KE-11411	listed	listed	listed	LQ2100000
⑫	—	—	—	listed	NDSL listed	listed	—
⑬	231-633-2	1-422	KE-27427	listed as XU	listed	listed	TB6300000

* free acid

**anhydrous

INDICATION OF DANGER :

③ EEC No.:200-659-6, Index No.:603-001-00-X, Danger Symbols F,T, R:11-23/25, S: (1/2-)7-16-24-45

⑪ EEC No.:200-679-5, Index No.:616-001-00-X, Danger Symbol T, R:61-20/21-36, S: 53-45

⑬ EEC No.:231-633-2, Index No.:015-011-00-6, Danger Symbol C, R:34, S:(1/2-)26-45

3. HAZARDS IDENTIFICATION

Maybe harmful if inhaled and ingested and contacted with skin. Irritation of eyes and skin. Toxic if swallowed. May cause harm to the unborn child. [2]: Flammable , [7]: Flammable, Possibly carcinogenic, [9]: Corrosive

4. FIRST AID MEASURES

GENERAL ADVICE :

Wash off immediately with soap and plenty of water. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.

INHALATION :

Move victim to fresh air. If breathing is difficult, give oxygen. If irritation persists, consult a physician.

SKIN CONTACT :

Remove contaminated clothes and shoes, rinse skin with plenty of water or shower. Use soap to help assure removal. If irritation persists, consult a physician.

EYE CONTACT :

Remove any contact lenses at once. Flush eyes well with flooding amounts of running water for at least 15minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, consult a physician.

INGESTION:

Rinse mouth, give plenty of water to dilute the substance. Never give anything by mouth to an unconscious person. Consult a physician.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Carbon dioxide, dry chemical powder, foam, water

FIRE AND EXPLOSION HAZARDS:

[1],[3]-[6],[8],[9]: Toxic, irritating fumes or smoke may be emitted. [2],[7]: Flammable liquid, hazardous toxic and irritating fumes or smoke may be emitted.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS :

Firemen should wear normal protective equipment (full bunker gear) and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :

Remove ignition sources and ventilate area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin and eyes.

ENVIRONMENTAL PRECAUTIONS : Prevent spills from entering sewers, watercourses or low areas.

METHODS FOR CLEAN UP :

Do not touch spilled material without suitable protection (See section 8). Take up spilled material with ashes or other absorbents. After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose of contaminated clothing. Drains should be well flushed with large amount of water when discarding the reagents.

7. HANDLING AND STORAGE

Research use only.

HANDLING :

Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Handle material with suitable protection away from source of heat or ignition and use non-sparking type tools.

STORAGE :

Store away from sunlight in a cool (2～8℃ = 35.6～46.4° F) well-ventilated dry place. Keep container tightly closed. See also the indication described on label for handling.

INCOMPATIBLE PRODUCTS : Water-reactive materials (alkali metals etc.), strong oxidizers, acids, heavy metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES :

Use exhaust ventilation to keep airborne concentrations below exposure limits. Use only with adequate ventilation.

VENTILATION :

Local Exhaust ; Necessary, Mechanical (General) ; Necessary, Special ; Closed system is recommended.

CONTROL PARAMETER : ①, ②, ④, ⑤, ⑥, ⑦, ⑧, ⑨, ⑩, ⑫ : Not available

③ OSHA PEL ; TWA 200ppm (260mg/m^3) , ACGIH TLV ; TWA 200ppm (262mg/m^3), ACGIH TLV ; STEL 250ppm (328mg/m^3) (skin), NIOSH REL ; TWA 200ppm (260mg/m^3) (skin), STEL 250ppm (325mg/m3) (skin) Health Effects : Blindness, metabolic acidosis.

⑪ OSHA PEL ; TWA 10ppm (30mg/m^3) (skin designation X), ACGIH TLV ; TWA 30mg/m^3 (10ppm) (skin), NIOSH REL ; TWA 10ppm (30mg/m^3) (skin), Health Effects : Vapors are toxic to the liver.

⑬ OSHA PEL ; TWA 1mg/m^3, ACGIH TLV ; TWA 1mg/m^3, ACGIH TLV ; STEL 3mg/m^3, NIOSH REL ; TWA 1mg/m^3 , STEL 3mg/m^3, Health Effects : Mild irritation of the eyes, upper respiratory tract, and skin.

PERSONAL PROTECTION :

Respiratory protection ; NIOSH/MSHA approved respirator / Hand protection ; Chemical resistant gloves
Eye protection ; Safety glasses (goggles) / Skin protection ; Protective clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE :

[1]; 96 well microplate [2]; Colorless clear liquid in clear bottle
[3]; White mass in clear bottle [4]; Colorless clear liquid in clear bottle
[5]; 96 well microplate [6]; White mass in silver package
[7]; Colorless to pale yellow liquid in brown bottle
[8]; Colorless clear liquid in clear bottle [9]; Colorless clear liquid in clear bottle

ODOR : [2],[7],[9]; Characteristic odor, [1],[3],[4],[5],[6],[8]; Odorless
pH : [2]; pH 7-9,[4]; pH 7-7.5,[6]; pH 7-7.4,[8]; pH 5-5.5,[9]; pH 1-2
BOILING POINT : ③65℃, ⑪153℃, [9]ca.100℃
MELTING POINT : ③-93℃, ⑤102-103℃, ⑪ -61℃, [9]-1.3℃
FLASH POINT : ⑪57.8℃ (TCC)
FLAMMABILITY : ③, ⑪ flammable
EXPLOSIVE LIMITS : ③6.0-35.6% (v/v), ⑪2.2-15.2% (v/v)
VAPOR PRESSURE : ③12.3kPa (20℃), ⑪ ca.356Pa (20℃)
SPECIFIC GRAVITY : ③0.793 (20/20℃), ⑪0.952 (20/20℃), [9]1.03 (15℃)
SOLUBILITY IN WATER : [2],[3],[4],[6],[8],[9]; Soluble, [7]; Miscible
log Po/w: ③octanol/H_2O= -0.82, -0.66, ⑪octanol/H_2O= -0.87
DECOMPOSITION TEMPERATURE : Not available

10. STABILITY AND REACTIVITY

CONDITION TO AVOID :

Sunlight, heat, open flames, high temperature, sparks, static electrical charges, other ignition sources.

INCOMPATIBILITY (MATERIAL TO AVOID) :

Water-reactive materials (alkali metals etc.), strong oxidizers, acids, heavy metals.

HAZARDOUS DECOMPOSITION PRODUCTS :

Carbon monoxide, nitrogen oxides, sulfur oxides, phosphor oxides and sodium compounds may be formed.

HAZARDOUS POLYMERIZATION : will not occur

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA : Not available as the mixture. ①, ④, ⑧, ⑫ Not available

② (free acid data) LD_{50} (oral, rat) 650mg/Kg (ARTODN 32,245,1974)

③ LDL_0 (oral, man) 6422mg/kg (CMAJAX 128,14,1983), TDL_0 (oral, man) 3429mg/kg (AMSVAZ 212,5,1982), LDL_0 (oral, human) 428mg/kg (NPIRI* 1,74,1974), LDL_0 (oral, human) 143mg/kg (34ZIAG -,382,1969), TDL_0 (oral, woman) 4g/kg (AMSVAZ 212,5,1982), TCL_0 (inhalation, human) 86000mg/m^3 (ACGHAR 5,1,1933), TCL_0 (inhalation, human) 300ppm (NPIRI* 1,74,1974)

⑤ (anhydrous data) LD_{50} (ip, rat) 30600mg/kg (OYYAA2 6,251,1972), LD_{50} (iv, rat) 15300mg/kg (OYYAA2 6,251,1972), LD_{50} (oral, rat) 34800mg/kg (YACHDS 7,53,1979), LD_{50} (subcutaneous, mouse) 38600mg/kg (YACHDS 7,53,1979)

⑥ LD_{50} (oral, rat) 1700mg/kg (BCFAAI 117,638,1978), LD_{50} (ip, rat) 1200mg/kg (JPETAB 99,171,1950), LD_{50} (oral, mouse) 800mg/kg (CCCCAK 47,636,1982), LD_{50} (ip, mouse) 270mg/kg (ARZNAD 10,820,1960)

⑦LD_{50} (oral, mouse) 1503mg/kg

⑨ LD_{50} (oral, rat) >36700μL/kg (FOREAE 21,348,1956), LD_{50} (ip, rat) 3850mg/kg (ARZNAD 26,1581,1976), LD_{50} (iv, rat) 770mg/kg (ARZNAD 26,1581,1976), LD_{50} (oral, mouse) >33g/kg (ARZNAD 26,1581,1976), LD_{50} (ip, mouse) 2640mg/kg (ARZNAD 26,1581,1976), LD_{50}(iv, mouse) 1420mg/kg (RPOBAR 2,316,1970), LD_{50} (oral, hamster) 18mL/kg (FOREAE 21,348,1956)

⑩ LD_{50} (ip, mouse) 135mg/kg (PMRSDJ 1,682,1981), LD_{50} (oral, quail)>316mg/kg (EESADV 6,149,1982)

⑪ LD_{50} (oral, rat) 2800mg/kg (ZEKBAI 69,103,1967), LCL_0 (inhalation, rat) 5000ppm/6H (USXXAM #5122301), LD_{50} (skin, rat)>3160mg/kg (NTIS** OTS0516779), LD_{50} (ip, rat) 1400mg/kg (BJIMAG 13,51,1956), LD_{50} (subcutaneous, rat) 3800mg/kg (ARZNAD 15,618,1965)

⑬ LDL_0 (unreported, man) 220mg/kg (85DCAI 2,73,1970), LD_{50} (oral, rat) 1530mg/kg (BIOFX* 17-4/1970), LC_{50} (inhalation, rat) >850mg/m^3 (BIOFX* 17-4/1970), LD_{50} (skin, rabbit) 2740mg/kg (BIOFX* 17-4/1970)

IRRITATION DATA : Not available as the mixture. ①, ②, ④, ⑤, ⑥, ⑧, ⑩, ⑫ Not available

③ Skin (rabbit) 20mg/24hr (moderate) (85JCAE -,187,1986), Eyes (rabbit) 40mg (moderate) (UCDS** 3/24/1970), Eyes (rabbit) 100mg/24hr (moderate) (85JCAE -,187,1986)

⑦ Skin (rabbit) >2% (irritant), Eyes (rabbit) >0.5% (irritant)

⑨ Skin (human) 15mg/3D-1 (mild) (85DKA8 -,127,1977)

⑪ Skin (human) 100%/24hr (mild) (BJIMAG 13,51,1956), Eyes (rabbit) 100mg rinse (severe) (DCTODJ 9,147,1986)

⑬ Skin (rabbit) 595mg/24hr (severe) (BIOFX* 17-4/1970), Eyes (rabbit) 119mg (severe) (BIOFX* 17-4/1970)

MUTATION DATA : Not available as the mixture. ①, ②, ④, ⑤, ⑦, ⑧, ⑨, ⑫, ⑬ Not available

③ DNA repair (E. coli) 20mg/well (MUREAV 133,161,1984), DNA inhibitor (human, lymphocyte) 300mmol/L (PNASA6 79,1171,1982), DNA damage (rat, oral) 10μmol/kg (ENMUDM 4,317,1982), Cytogenic analysis (mouse, oral) 1g/kg (ENMUDM 7 (Suppl. 3), 10,1985), Cytogenic analysis (mouse, ip) 75mg/kg (ENMUDM 5,381,1983)

⑥ Mutation (S. typhimurium) 5μmol/plate, (+/-S9) (MUREAV 206,317,1988), DNA repair (E. coli) 312μg/well (MUREAV 133,161,1984)

⑩ DNA (E. coli) 20μmol/L (MUREAV 89,95,1981), Micronucleus test (mouse, ip) 112500μg/kg (PMRSDJ 1,698,1981), Mutation in mammalian somatic cells (mouse, lymphocyte) 30700μg/L (EMMUEG 12 (Suppl. 13), 37,1988)

⑪ Mutation (S. typhimurium) 600μg /plate (-S9) (PMRSDJ 1,343,1981), DNA repair (S. cerevisiae) 300mg/L (PMRSDJ 1,502,1981), Sex chromosome loss and nondisjunction (S. cerevisiae) 25mg/L (PMRSDJ 1,468,1981), Cytogenic analysis (human, inhalation) 12300μg/m^3 (ZHYGAM 31,366,1985), Cytogenic analysis (human, lymphocyte) 100nmol/L (CHPUA4 31,548,1981), Dominant lethal test (rat, inhalation) 10700μg/m^3 (TPKVAL 15,21,1979)

REPRODUCTIVE EFFECTS DATA : Not available as the mixture. ①, ②, ④, ⑥, ⑦, ⑧, ⑩, ⑫, ⑬ Not available

③ TDL_0 (rat, oral, 17-19D preg) 7500mg/kg (TJADAB 33,259,1986), TDL_0 (rat, oral, 1-15D preg) 35295mg/kg (ONGZAC 22 (1), 71,1991), TDL_0 (rat, oral, 6-15D preg) 20g/kg (TJADAB 49,399,1994), TCL_0 (rat, inhalation,

7H, 1-22D preg) 20000ppm (TJADAB 29 (2), 48A, 1984), TDL_0 (rat, inhalation, 7H, 7-15D preg) 20000ppm (FAATDF 5,727,1985)

⑤ (anhydrous data) TDL_0 (rat, iv, 9-14D preg) 15g/kg (OYYAA2 6,751,1972), TDL_0 (mouse, oral, 8-12D preg) 50g/kg (TCMUD8 6,361,1986), TDL_0 (mouse, iv, 7-12D preg) 30g/kg (OYYAA2 6,751,1972), TDL_0 (mouse, iv, 7-12D preg) 60g/kg (OYYAA2 6,751,1972), TDL_0 (rabbit, iv, 8-16D preg) 22500mg/kg (OYYAA2 7,1359, 1973), TDL_0 (rabbit, iv, 18-31D preg/28D post) 105mg/kg (OYYAA2 16,971,1978)

⑨ TDL_0 (mouse, ip, 9D preg) 1g/kg (ZNCBDA 36,904,1981), TDL_0 (mouse, ip, 9D preg) 2500mg/kg (ZNCBDA 36,904,1981), TDL_0 (mouse, ip, 9D preg) 1g/kg (TJADAB 26 (3), 19A, 1982)

⑪ TDL_0 (rat, oral, 6-15D preg) 5030mg/kg (FCTOD7 29,193,1991), TCL_0 (rat, inhalation, 6H, 13W pre) 800ppm (NTPTR* NIH-93-3345), TCL_0 (rat, inhalation, 6H, 13W male) 50ppm (NTPTR* NIH-93-3345)

TUMORIGENIC DATA :Not available as the mixture. ①, ②, ③, ④, ⑥, ⑦, ⑧, ⑨, ⑩, ⑬ Not available

⑤(anhydrous data) TDL_0 (subcutaneous, mouse/50W-C) 1750mg/kg (GANNA2 48,556,1958)

⑪ ACGIH:A4 (Not classifiable as a human carcinogen), OSHA : Possible select carcinogen, IARC: Group 2B (Possibly Carcinogenic to Human)

⑫ IARC : Group 3 (Not classifiable as to Carcinogenicity to Humans)

12. ECOLOGICAL INFORMATION

BIODEGRADABILITY, *BIOACUMULATION POTENTIAL* : Not available

AQUATIC TOXICITY : ③TLm (96hr) >1000ppm (Goldfish), ⑦TLm (48hr) 6.4ppm (Killfish), ⑪LC_{50} (48hr) 9800mg/L (Killfish), ⑬LD_{50} (96hr) 10-100mg/L (Fish), Lethal at 135mL/L, LC_{50} (48hr) 240mg/L (Shore crab), Chronic plant toxicity: 100ppm

OTHER DATA : Not available

13. DISPOSAL CONSIDERATION

Take up the material with combustible absorbents and burn in small portion in a chemical incinerator equipped with an afterburner and scrubber in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations (contact country, local or state environmental agency for specific rules).

14. TRANSPORT INFORMATION

⑪ N, N-Dimethylformamide; IATA:Substance ID#:2265, Hazard ID#: 30, Label: 3,Class & Item #:3, 31. deg.(c)./DOT : UN2265, Flammable liquid

⑫ IATA:Substance ID#:N/A, Hazard ID#: 58, Label: 5.1+8,Class & Item #:5.1,31.deg.(c)./DOT : Oxidizer

⑬ Phosphoric acid; IATA:Substance ID#: 1805, Hazard ID#: 80, Label: 8,Class & Item #:8, 17. deg.(c)./DOT : UN1805, Corrosive

15. REGULATORY INFORMATION

US REGULATIONS ;①, ④, ⑤, ⑥, ⑦, ⑧, ⑩ No regulation

② as methanol
CAA: HAP, VOC, CWA: Hazardous substance, FIFRA : PAI, PII, RCRA: LDR, SARA: TRI, CERCLA RQ=5,000lbs./ 2270kg, DOT: CGBHM, DOT :[UN1230］[Flammable liquid, Poison], FDA: PAFA

③ CAA: HAP, VOC, CWA: Hazardous substance, FIFRA : PAI, PII, RCRA: LDR, SARA: TRI, CERCLA RQ=5,000lbs./ 2270kg, DOT: CGBHM, DOT :［UN1230］［Flammable liquid, Poison］, FDA: PAFA

⑨ FIFRA: PAI, PII, FDA: PAFA

⑪ CAA: HAP, VOC, CWA: Hazardous substance, FIFRA: PII, SARA: CERCLA RQ=100lbs./ 45.4kg), DOT: CGBHM, CGNL,［UN2265］［Flammable liquid］

⑫ DOT:［Not Applicable］［Oxidizer］

⑬ CWA: Hazardous substance, FIFRA: PAI, PII, SARA: TRI, CERCLA RQ=5000lbs./2270kg, DOT: CGBHM,CGNL, FDA: PAFA

16. OTHER INFORMATION

No specific notes

The above information is believed to be correct to be the best of our knowledge and information but does not purport to be all inclusive and shall be used only as a guide. This product is intended to be used by expert persons having chemical knowledge and skill at their own discretion and risk and Takeda shall not be held liable for any damage resulting from handling or from contact with the above material.

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