

Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Glucagon-HS ELISA
Product number: YK091
Manufacturer: YANAIHARA INSTITUTE, INC.
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2. HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture 3), 5), 6)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1, 2
Serious eye damage/eye irritation	Category 1, 2A
Specific target organ toxicity (single exposure)	Category 1
Category 1 respiratory system, cardiovascular system, kidneys, nervous system	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 respiratory system, cardiovascular system, liver, digestive system, blood system, kidneys, pancreas, thymus, central nervous system	
Germ cell mutagenicity	Category 1B
Reproductive toxicity	Category 1B

Pictograms



Signal word Danger

Hazard statements

H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H340 - May cause genetic defects
H360 - May damage fertility or the unborn child
H370 - Causes damage to the following organs: respiratory system, cardiovascular system, kidneys, nervous system

H372 - Causes damage to the following organs through prolonged or repeated exposure:
respiratory system, cardiovascular system, liver, digestive system, blood system,
kidneys, pancreas, thymus, central nervous system

Precautionary statements-(Prevention)

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fumes/gas/mist/vapors/spray.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.

Precautionary statements-(Response)

Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim 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: Call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
Wash contaminated clothing before reuse.

Precautionary statements-(Storage)

Store locked up
Store in a well-ventilated place. Keep container tightly closed.

Precautionary statements-(Disposal)

Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Other reagents may be harmful if inhaled and ingested. May cause eye and skin irritation.

3. COMPOSITION, INFORMATION ON INGREDIENTS

Product Name **Glucagon-HS ELISA** CAS Number **None**

Kit components:

No.	Component	Quantity	Chemical name	Wt%	CAS No.	Chemical Formula
1)	Antibody coated plate	1 plate	Plate coated with mouse anti Glucagon monoclonal antibody ①			
2)	Standard	0.287 pmol	Synthetic Glucagon ②			
3)	HRP labeled antibody solution	12 mL	HRP labeled mouse anti Glucagon monoclonal antibody ③			
4)	Enzyme substrate solution (TMB)	12 mL	Phenol ④	0.096%	108-95-2	C6H5OH
			Chloramphenicol ⑤	0.02%	56-75-7	C11H12CL2N2O5
			3,3',5,5'-Tetramethylbenzidine ⑥	No Information	54827-17-7	C16H20N2
5)	Stopping solution	12 mL	Sulfuric acid (1M) ⑦	9.69%	7664-93-9	H2SO4
6)	Buffer solution	12 mL	Buffer containing a reaction accelerator ⑧			
7)	Washing solution (concentrated)	50 mL	Phenol ④	0.096%	108-95-2	C6H5OH
			Chloramphenicol ⑤	0.02%	56-75-7	C11H12CL2N2O5
			Sodium chloride ⑨	18%	7647-14-5	NaCl
8)	Adhesive foil	2 pieces	Polyoxyethylene sorbitan monolaurate (Tween20) ⑩	1%	9005-64-5	C58H114O26

4. FIRST AID MEASURES

Inhalation: Immediately remove victim to fresh air. Consult a physician if necessary.
Eye contact: Immediately flush eyes with flooding amounts of running water for at least 15 minutes. Consult a physician if necessary.
Skin contact: Immediately remove contaminated clothes and shoes, flush skin with plenty of water or shower. Wash contaminated clothing and shoes. Consult a physician if necessary.
Ingestion: Immediately seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable properties: Nonflammable
Extinguishing media: Foam, Carbon dioxide, dry chemical powder, soil, water
Fire fighting instructions: May emit toxic fumes under fire conditions. Wear full fire fighting protective equipment including self-contained breathing apparatus. Do not contact to the components when extinguish fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Remove all ignition sources and ventilate. Wear suitable protective equipment. Avoid contact with skin and eyes. Keep off except persons concerned.
Environmental precautions: Prevent spills from entering sewers, watercourses or low area, and prevent from affecting environment.
Methods for Clean up: In case of spill of liquid material, take up or cover spilled material with ashes or other incombustible absorbents, and put in a container to be sealed. After completely picked up, dispose. In case of spill of solid or powder material, prevent causing dust, sweep and collect, and put in a container to be sealed. Wash the spill site with water.

7. HANDLING AND STORAGE

- Handling:** Obtain a package insert before use.
Read all the cautions for safety in the package insert before use.
Avoid strong light.
Avoid contact, inhalation and swallow.
Use only in open air or ventilated area.
Prevent from entering eyes.
Ventilate the area to keep concentration in air below exposure limits.
Avoid inhalation of mist, vapor and spray of material.
Avoid contact with eyes, skin and clothing.
Do not smoke and eat while using this kit.
Wash hands thoroughly after handling.
Prevent from entering environment.
Handle materials with suitable protection.
Use suitable equipment.
Do not pipette by mouth.
Do not leak, overflow and scatter.
Do not fall down and damage.
- Storage:** Store away from sunlight in a cool and dark place at 36-47°F (2-8°C).

8. EXPOSURE CONTOROLS, PERSONAL PROTECTION

Engineering measures: General ventilation and/or local exhaust ventilation as well as process isolation is necessary to minimize employee exposure and maintain exposure limits below exposure limits. Equip eye flushing facilities and shower rooms near operating place where this kit is handled or stored.

Control parameter:

④ JSOH (Japan);	TWA= 5 ppm OEL
	TWA= 19mg/m3 OEL Skin
ACGIH TLV(s);	TWA= 5 ppm Skin
⑦ JSOH (Japan);	OEL= 1 mg/m3
ACGIH TLV(s);	TWA= 0.2 mg/m3

Personal protection:

Respiratory protection;	NIOSH and MSHA approved respirator.
Hand protection;	Suitable impervious gloves.
Eye protection;	Suitable safety glasses (goggles).
Skin protection;	Suitable protective clothing.

Others: Wash hands thoroughly after handling materials.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component	1)	2)	3)	4)	5)	6)	7)	8)
Appearance	Colorless plate	White color, lyophilized powder	Orange color, Liquid	Colorless to pale yellow liquid	Colorless transparent, Liquid	Orange color, Liquid	Colorless transparent, Liquid	Colorless transparent Polymer sheet
pH	N/A	N/A	6.75-6.85	3.3-3.8	<1.0	6.75-6.85	D/N/A	N/A
Melting point	N/A	D/N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boiling point	N/A	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	N/A
Flash point	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	N/A
Explosive limits	N/A	D/N/A	D/N/A	Not explosive	D/N/A	D/N/A	D/N/A	N/A
Vapor pressure	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	N/A
Vapor density (air=1)	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	N/A
Specifics gravity	D/N/A	D/N/A	D/N/A	1.01	D/N/A	D/N/A	D/N/A	D/N/A
Solubility in water	Insoluble	Soluble	Mixable	Mixable	Mixable	Mixable	Mixable	Insoluble
Decomposition temperature	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	N/A

N/A: Not applicable
 D/N/A: data not available

10. STABILITY AND REACTIVITY

Chemical stability: Product is stable under normal handling.
Shelf life: Stable up to 24 months after manufacturing.
Hazardous polymerization: Will not occur.
Conditions to avoid: Extremes of temperature and direct sunlight, heat, flames and sparks, static electricity, spark, moisture
Incompatibility with other materials: Alkaline substances, metals, strong oxidizing agents
Hazardous decomposition products: Sulfur oxides(SOx), Carbon monoxide(CO), carbon dioxide(CO2), Nitrogen oxides(NOx)

11. TOXICOLOGICAL INFORMATION

Information as the mixture is not available.

Acute toxicity :

- 3,6) Phenol (oral, rat); LD50=340 - 530mg/kg Category 4
 (dermal, rabbit); LD50=630mg/kg
 (dermal, rat); LD50=669.4mg/kg Category 3
 (inhalation, rat); 8h LC50 >900mg/m3 Classification not possible
 ④Content=0.096% Classification not possible
 Chloramphenicol (oral, rat); LD50=2500mg/kg Not classified
- 4) Not classified
- 5) Sulfuric acid (inhalation, rat); 4h LC50=347ppm
 (Oral, rat) LD50=2140mg/kg
 Acute toxicity (Oral) Category 5
 Acute toxicity (Inhalation: Dusts and mists) Category 2
 ⑦Content=9.69% Acute toxicity (Inhalation: Dusts and mists) Category 3
- 7) Tween 20 (oral, rat); LD50=37000mg/kg

Inhalation (rat); >5.1mg/L, 4h

Skin corrosion/irritation:

- 3,6) Phenol; Category 1
 - ④Content=0.096% Not classified
 - Chloramphenicol; Classification not possible
- 4) Not classified
- 5) Sulfuric acid; Category 1
 - ⑦Content=9.69% Category 1
- 7) Tween 20 ; No information available

Serious eye damage/irritation:

- 3,6) Phenol; Category 1
 - ④Content=0.096% Not classified
 - Chloramphenicol; Classification not possible
- 4) Not classified
- 5) Sulfuric acid; Category 1
 - ⑦Content=9.69% Category 1
- 7) Tween 20; No information available

Respiratory or skin sensitization:

Respiratory sensitization:

- 3,6) Phenol; Classification not possible
 - Chloramphenicol; Classification not possible
- 4) Not classified
- 5) Sulfuric acid; Classification not possible
- 7) Tween 20; No information available

Skin sensitization

- 3,6) Phenol; Not classified
 - Chloramphenicol; Classification not possible
- 4) Not classified
- 5) Sulfuric acid; Not classified
- 7) Tween 20; No information available

Germ cell mutagenicity:

- 3,6) Phenol; Category 2
 - ④Content=0.096% Category 1B
 - Chloramphenicol; Category 2
 - ⑤Content=0.02% No information available
- 4) Not classified
- 5) Sulfuric acid; Classification not possible
- 7) Tween 20; No information available

Carcinogenicity:

- 3,6) Phenol; Not classified IARC group 3 (1999) (substances which cannot be

classified to human carcinogens), ACGIH: A4 (2005), IRIS: D (2002)
Chloramphenicol; Category 1B IARC group 2A (substances which may be
carcinogenic to human)

⑤Content=0.02% No information available

4) Not classified

5) Sulfuric acid; Occupational exposure to Mist of inorganic strong acids
including sulfuric acid is classified to group 1 in IARC (to have
carcinogenicity for human), group A2 in ACGIH (suspected
human carcinogens) and group K in NTP (known to have
carcinogenicity for human). With respect for the evaluation by
IARC and current evaluation by NTP, it should be classified to
category 1, however since sulfuric acid itself is classified to
Category 4 in DFGOT and is not classified to carcinogen by any
other organization,
Classification not possible

7) Tween 20; No information available

Reproductive toxicity:

3,6) Phenol; Category 1B

④Content=0.096% Not classified

Chloramphenicol; Category 1B

⑤Content=0.02% No information available

4) Not classified

5) Sulfuric acid; Not classified

7) Tween 20; No information available

Specific target organ systemic toxicity/Single exposure:

3,6) Phenol; Category 1 (nervous system, respiratory organs, cardiovascular
system, kidney)

④Content=0.096% Not classified

Chloramphenicol; Classification not possible

4) Not classified

5) Sulfuric acid; Category 1 (Respiratory system)

⑦Content=9.69% Category 2

7) Tween 20; No information available

Specific target organ systemic toxicity/Repeated exposure:

3,6) Phenol; Category 1 (central nervous system, cardiovascular
system, blood system, liver, kidney)

④Content=0.096% Not classified

Chloramphenicol; Category 1 (Hematopoietic system, nervous system,
circulatory system, digestive organ)

⑤Content=0.02% No information available

4) Not classified

5) Sulfuric acid; Category 1 (Respiratory system)

⑦Content=9.69% Category 2

Aspiration hazard:

- 7) Tween 20; No information available
- 3,6) Phenol; Classification not possible
Chloramphenicol; Classification not possible
- 4) No information available
- 5) Sulfuric acid; Classification not possible
- 7) Tween 20; No information available

12. ECOLOGICAL INFORMATION

Information as the mixture is not available.

Aquatic environmental toxicity/Acute phase:

- 3,6) Phenol; Ceriodaphnia: LC50=3.1mg/L/48h Category 2
 - ④Content=0.096% Not classified
 - Chloramphenicol; 72h EC50=0.78mg/L (Desmodesmus subspicatus)
Category 1
 - ⑤Content=0.02% No information available
- 4) No data available.
- 5) Sulfuric acid; 96h LC50=16-28mg/L for fish (Lepomis macrochirus)
Category 3
 - ⑦Content=9.69% Not classified
- 7) Tween 20; No information available

Aquatic environmental toxicity/Chronical phase:

- 3,6) Phenol; Category 2
 - ④Content=0.096% Not classified
 - Chloramphenicol; Category 1
 - ⑤Content=0.02% No information available
- 4) No data available.
- 5) Sulfuric acid; 24h LC50=29mg/L for crustacea (Daphnia magna)
Category 1
 - ⑦Content=9.69% Not classified
- 7) Tween 20; No information available

Persistence and degradability:

- 3,6) Phenol; Classification not possible
Chloramphenicol; Classification not possible
- 4) No additional information available
- 5) Sulfuric acid; No information available
- 7) Tween 20; No information available

Bioaccumulative potential:

- 3,6) Phenol; Classification not possible
Chloramphenicol; Classification not possible
- 4) No additional information available
- 5) Sulfuric acid; No information available
- 7) Tween 20; No data available

Mobility in soil:

- 3,6) Phenol: Classification not possible
Chloramphenicol: Classification not possible
- 4) No additional information available
- 5) Sulfuric acid: No information available
- 7) Tween 20: No information available

Hazard to the ozone layer:

- 3,6) Phenol: Classification not possible
Chloramphenicol: Classification not possible
- 4) No additional information available
- 5) Sulfuric acid: Classification not possible
- 7) Tween 20: No information available

13. DISPOSAL CONSIDERATIONS

Dispose of all waste material including containers in accordance with all applicable laws and local environmental regulations.

14. TRANSPORT INFORMATION

IATA: As a mixture, the substance is subjected to no limitations.

ADR/RID	
UN number	UN2796
Proper shipping name:	Sulfuric acid
UN classification	8
Packing group	II
Marine pollutant	Not applicable
IMDG	
UN number	UN2796
Proper shipping name:	Sulfuric acid
UN classification	8
Packing group	II
Marine pollutant	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	
UN number	UN2796
Proper shipping name:	Sulfuric acid
UN classification	8
Packing group	II
Environmentally Hazardous Substance	Not applicable

15. REGULATORY INFORMATION

International Inventories

EINECS/ELINCS

⑦Listed

TSCA

⑦Listed

Fire Service Act;

Not applicable

Poisonous and Deleterious Substances Control Law;

Not applicable

Industrial Safety and Health Act;

⑦Group 3 Specified Chemical Substance, (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Item 6)

④⑦Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)

④⑦Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No. 9) No.474④, No.613

⑦

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.;

④Priority Assessment Chemical Substances (Law Article 2, Para.5)

Regulations for the carriage and storage of dangerous goods in ship;

⑦Corrosive Substances(Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

Civil Aeronautics Law;

⑦Corrosive Substances(Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc. , Attached Table 1)

Air Pollution Control Law;

④Specified Substances, Hazardous Air Pollutants

⑦Specified substance

Marine Pollution Prevention Law;

⑦Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment

Not applicable

and Promotion of Improvements to the Management Thereof (Pollutant Release and

Transfer Register Law/ PRTR);

Water Pollution Control Act;

④⑦Specified substances(Law Art.2 Para.4, Enforcement Order Art.3-3)

Export Trade Control Order ;

Not applicable

16. OTHER INFORMATION

Reference and abbreviation

- 1) Internal data of Yanaihara Institute, Inc.
- 2) SIDS(2001)
- 3) RTECS : Registry of Toxic Effects of Chemical Substances.
- 4) NTP DB (Access on Dec., 2005), National Toxicology Program
- 5) SDS by FUJI FILM Wako Pure Chemical Corporation
- 6) ACGIH(2004): American Conference of Governmental Industrial Hygienists
- 7) JSOH : Japanese Society of Occupational Health
Recommendation of Occupational Exposure Limits (2021-2022)
- 8) NIOSH: National Institute of Occupational Safety and Health
- 9) MSHA: Mine Safety and Health Administration
- 10) IARC(1992): International Agency for Research on Cancer
- 11) DFGOT: Occupational Toxicants: Critical Data Evaluation for MAK Value and Classification of Carcinogens, Vol. 15, 2001
- 12) SDS by Bio-Rad laboratories, Life Science Group

Key literature references and sources for data etc. ;

NITE: National Institute of Technology and Evaluation (JAPAN)

<http://www.safe.nite.go.jp/japan/db.html> IATA dangerous Goods Regulations RTECS: Registry of Toxic Effects of Chemical Substances Japan Industrial Safety and Health Association GHS Model SDS Dictionary of Synthetic Organic Chemistry, SSOCJ, Koudansha Scientific Co.Ltd. Chemical Dictionary, Kyouritsu Publishing Co., Ltd. etc.

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