

Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Human Chromogranin A EIA
Product number: YK070
Manufacturer: YANAIHARA INSTITUTE, INC.
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2. HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture 4), 7), 8), 9)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 1, 2, 3
Category 1 respiratory system	
Category 2 blood system	
Category 3 respiratory tract irritation, narcotic effects	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 respiratory system	
Aquatic environment (acute hazard)	Category 2
Aquatic environment (long-term hazard)	Category 2

Pictograms



Signal word Danger

Hazard statements

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H341 - Suspected of causing genetic defects
H351 - Suspected of causing cancer
H370 - Causes damage to the following organs: respiratory system
H371 - May cause damage to the following organs: blood system
H372 - Causes damage to the following organs through prolonged or repeated exposure:
respiratory system
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

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.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.

Precautionary statements-(Response)

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 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: Get medical advice/attention.
Immediately call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell.
If skin irritation or a rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Collect spillage.

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
Human Chromogranin A EIA

CAS Number
None

Kit components:

No.	Component	Quantity	Chemical name	Wt%	CAS No.	Chemical Formula
1)	Antibody coated plate	1 plate	Plate coated with goat anti rabbit IgG antibody ①			
2)	CgA Standard	100 pmol	Synthetic human CgA(344-374) ②			
3)	Labeled antigen	30 ng/vial	Biotinylated human CgA(344-374) ③			
4)	Specific antibody	1 vial	Rabbit anti human CgA(344-374) antibody ④ EDTA2Na⑤	17.7%	6381-92-6	C10H14N2Na2O8.2H2O
5)	SA-HRP solution	12 mL	HRP labeled Streptavidin⑥			
6)	Substrate buffer	25 mL	Hydrogen peroxide ⑦ Citric acid, monohydrate ⑧ Disodium hydrogenphosphate 12-water ⑨	0.015% 0.7% 2.39%	7722-84-1 5949-29-1 10039-32-4	H2O2 C6H8O7·H2O Na2HPO4·12H2O
7)	OPD tablet	2 tablets	o-Phenylenediamine dihydrochloride⑩	13mg	615-28-1	C6H4(NH2)2 2HCL
8)	Stopping solution	12 mL	Sulfuric acid (1M) ⑪	9.69%	7664-93-9	H2SO4
9)	Buffer solution (Concentrated)	12 mL	Phosphate buffer with non specific reaction blocker ⑫ EDTA2Na⑤			
10)	Washing solution (Concentrated)	50 mL	Sodium chloride ⑬ Polyoxyethylene sorbitan monolaurate (Tween20) ⑭	3.7% 18% 1%	6381-92-6 7647-14-5 9005-64-5	C10H14N2Na2O8.2H2O NaCl C58H114O26
11)	Adhesive foil	3 sheets				

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
Firefighting 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 equipments.
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 CONTROLS, 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:

⑦ACGIH TLV(s);	TWA= 1 ppm
⑩ACGIH;	TWA=0.1mg/m ³
⑪JSOH (Japan);	OEL= 1 mg/m ³
ACGIH TLV(s);	TWA= 0.2 mg/m ³

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)	9)	10)	11)
Appearance	Colorless plate	White color, lyophilized powder	White color, lyophilized powder	White color, lyophilized powder	Orange color, Liquid	Colorless transparent, Liquid	White tablet	Colorless transparent, Liquid	Light yellow color, Liquid	Colorless transparent, Liquid	Colorless transparent Polymer sheet
pH	N/A	N/A	N/A	N/A	D/N/A	5.0	N/A	<1.0	7.0	D/N/A	N/A
Melting point	N/A	D/N/A	D/N/A	D/N/A	N/A	N/A	D/N/A	N/A	N/A	N/A	N/A
Boiling point	N/A	N/A	N/A	N/A	D/N/A	D/N/A	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	D/N/A	D/N/A	D/N/A	N/A
Explosive limits	N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	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	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	D/N/A	D/N/A	D/N/A	N/A
Specific gravity	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A	D/N/A
Solubility in water	Insoluble	Soluble	Soluble	Soluble	Mixable	Mixable	Soluble	Mixable	Mixable	Mixable	Insoluble
Decomposition temperature	D/N/A	D/N/A	D/N/A	D/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 12 months after manufacturing.
 Hazardous polymerization: Will not occur.
 Conditions to avoid: Extremes of temperature and direct sunlight.
 Incompatibility with other materials: Alkaline substances, strong oxidizing agents.
 Hazardous decomposition products: Sulfur oxides (SO_x), Carbon monoxide(CO), carbon dioxide(CO₂), Nitrogen oxides (NO_x), Hydrogen chloride(HCl) gas.

11. TOXICOLOGICAL INFORMATION

Information as the mixture is not available.

Acute toxicity:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; (Oral) Category 4
 ⑦Content=0.015% No information available
- 7) o-Phenylenediamine dihydrochloride; No data available
- 8) 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
 ⑪Content=9.69% Acute toxicity (Inhalation; Dusts and mists) Category 3
- 10) Tween 20 (oral, rat); LD50=37000mg/kg
 Inhalation (rat); >5.1mg/L, 4h

Skin corrosion/irritation:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide (skin); Category 1
 - ⑦Content=0.015% No information available
- 7) o-Phenylenediamine dihydrochloride; No data available
- 8) Sulfuric acid; Category 1
 - ⑪Content=9.69% Category 1
- 10) Tween 20; No information available

Serious eye damage/irritation:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; Category 1
 - ⑦Content=0.015% No information available
- 7) o-Phenylenediamine dihydrochloride; No data available
- 8) Sulfuric acid; Category 1
 - ⑪Content=9.69% Category 1
- 10) Tween 20; No information available

Respiratory or skin sensitization:

Respiratory sensitization:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; Not classified
- 7) o-Phenylenediamine dihydrochloride; Classification not possible
- 8) Sulfuric acid; Classification not possible
- 10) Tween 20; No information available

Skin sensitization:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; Not classified
- 7) o-Phenylenediamine dihydrochloride; Category 1
- 8) Sulfuric acid; Not classified
- 10) Tween 20; No information available

Germ cell mutagenicity:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; Not classified
- 7) o-Phenylenediamine dihydrochloride; Category 2
- 8) Sulfuric acid; Classification not possible
- 10) Tween 20; No information available

Carcinogenicity:

- 4), 9) EDTA2Na; No data available
- 6) Hydrogen peroxide; Category 2
 - ⑦Content=0.015% No information available
- 7) o-phenylenediamine dihydrochloride; Category 1B
- 8) 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

- 10) Tween 20; No information available

Reproductive toxicity:

- 4), 9) EDTA2Na; No data available
6) Hydrogen peroxide; Classification not possible
7) o-Phenylenediamine dihydrochloride; No data available
8) Sulfuric acid; Not classified
10) Tween 20; No information available

Specific target organ systemic toxicity/Single exposure:

- 4), 9) EDTA2Na; No data available
6) Hydrogen peroxide; Category 1
⑦Content=0.015% No information available
7) o-Phenylenediamine dihydrochloride;
Category 1 (Blood system)
Category 2 (Central nervous system)
Category 3 (Respiration tract irritation)
8) Sulfuric acid; Category 1 (Respiratory system)
⑪Content=9.69% Category 2
10) Tween 20; No information available

Specific target organ systemic toxicity/Repeated exposure:

- 4), 9) EDTA2Na; No data available
6) Hydrogen peroxide; Category 1 (Respiratory organs)
⑦Content=0.015% No information available
7) o-Phenylenediamine dihydrochloride; No data available
8) Sulfuric acid; Category 1 (Respiratory system)
⑪Content=9.69% Category 2
10) Tween 20; No information available

Aspiration hazard:

- 4), 9) EDTA2Na; No information available
6) Hydrogen peroxide; Classification not possible
7) o-Phenylenediamine dihydrochloride; Classification not possible
8) Sulfuric acid; Classification not possible
10) Tween 20; No information available

12. ECOLOGICAL INFORMATION

Information as the mixture is not available.

Aquatic environmental toxicity/Acute phase:

- 4),9) EDTA2Na;
Scenedesmus quadricauda 72h EC50=1.01mg/L
- 6) Hydrogen peroxide; Category 1
Algae/aquatic plants ; 72h EC50= Nitzschia sp. 0.85mg/L
Oncorhynchus mykiss; 96h LC50=10.0-32.0 mg/L
Daphnia magna; 48h EC50=18-32 mg/L
⑦Content=0.015% No information available
- 7) o-Phenylenediamine dihydrochloride; No information available
- 8) Sulfuric acid; 96h LC50=16-28mg/L for fish (Lepomis macrochirus)
Category 3
⑪Content=9.69% Not classified
- 10) Tween 20; No information available

Aquatic environmental toxicity/Chronical phase:

- 4), 9) EDTA2NA; No data available
- 6) Hydrogen peroxide; Not classified
- 7) o-Phenylenediamine dihydrochloride; No data available
- 8) Sulfuric acid; 24h LC50=29mg/L for crustacea (Daphnia magna)
Category 1
⑪Content=9.69% Not classified
- 10) Tween 20; No information available

Persistence and degradability:

- 4), 9) EDTA2NA; No data available
- 6) Hydrogen peroxide; No information available
- 7) o-Phenylenediamine dihydrochloride; Degree of decomposition, 0% by BOD
(METI Existing chemical safety inspections)
- 8) Sulfuric acid; No information available
- 10) Tween 20; No information available

Bioaccumulative potential:

- 4), 9) EDTA2NA; No data available
- 6) Hydrogen peroxide; No information available
- 7) o-Phenylenediamine dihydrochloride; No information available
- 8) Sulfuric acid; No information available
- 10) Tween 20; No information available

Mobility in soil:

- 4), 9) EDTA2NA; No data available
- 6) Hydrogen peroxide; No information available
- 7) o-Phenylenediamine dihydrochloride; No information available

- 8) Sulfuric acid; No information available
- 10) Tween 20; No information available

Hazard to the ozone layer:

- 4), 9) EDTA2NA; No data available
- 6) Hydrogen peroxide; No information available
- 7) o-Phenylenediamine dihydrochloride; No information available
- 8) Sulfuric acid; No information available
- 10) 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	UN3077
Proper shipping name;	Sulfuric acid	Environmentally hazardous substance, solid, n.o.s. (o-Phenylenediamine · 2HCl)
UN classification	8	9
Packing group	II	III
Marine pollutant	Not applicable	Yes

IMDG

UN number	UN2796	UN3077
Proper shipping name;	Sulfuric acid	Environmentally hazardous substance, solid, n.o.s. (o-Phenylenediamine · 2HCl)
UN classification	8	9
Packing group	II	III
Marine pollutant	Not applicable	Yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available

No information available

IATA

UN number	UN2796	UN3077
Proper shipping name;	Sulfuric acid	Environmentally hazardous substance, solid, n.o.s. (o-Phenylenediamine · 2HCl)
UN classification	8	9
Packing group	II	III
Environmentally Hazardous Substance	Not applicable	Yes

15. REGULATORY INFORMATION

International Inventories

EINECS/ELINCS

⑪Listed

TSCA

⑪Listed

Japanese regulations

Fire Service Act;

Not applicable

Poisonous and Deleterious Substances Control Law;

Not applicable

Industrial Safety and Health Act;

⑩Substances with Health Hazards Prevention Guideline (Carcinogenicity Substance)

⑪Group 3 Specified Chemical Substance, (Ordinance on Prevention of Hazards Due to Specified Chemical Substances Art.2 Para.1, Item 6)

⑪Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)

⑪Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table 9) No.613

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

Not applicable

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

⑩Noxious Substances(Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

⑪Corrosive Substances(Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)

Civil Aeronautics Law;

⑩Miscellaneous Dangerous Substances and Articles (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc. , Attached Table 1)

⑪Corrosive Substances(Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc. , Attached Table 1)

Air Pollution Control Law;

⑪Specified substance

Marine Pollution Prevention Law;

⑪Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Pollutant Release and Transfer Register Law/ PRTR);

⑤Class I Designated Chemical Substances, No. 595

Water Pollution Control Act;

⑪Specified 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 Dojindo Laboratories
- 13) 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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