MATERIAL SAFETY DATA SHEET

PANAX ECO YELLOW 1845

1. IDENTIFICATION

A. Product name

- PANAX ECO YELLOW 1845

B. Recommended use and restriction on use

- General use : Not available
- Restriction on use : Not available

C. Supplier information

- Company name : UKSEUNG CHEMICAL CO., LTD.
- Address : 174, Gaejwa-ro, Geumjeong-gu, Busan, Korea
- Telephone number :+82-51-523-1515

2. HAZARD IDENTIFICATION

A. GHS Classification

- Carcinogenicity : Category2
- Chronic aquatic toxicity : Category4

B. GHS label elements

○ **Hazard symbols**

○ **Signal words**

- Warning

○ **Hazard statements**

- H351 Suspected of causing cancer
- H413 May cause long lasting harmful effects to aquatic life

○ **Precautionary statements**

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P273 Avoid release to the environment.
- P281 Use personal protective equipment as required.

2) Response

- P308+P313 If exposed or concerned: Get medical advice/attention.

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 0, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Barium sulfate, natural	Sulfuric acid, barium salt (1:1)	7727-43-7	20~30
Titanium dioxide	Titanium oxide (Tio2)	13463-67-7	20~30
C.I. pigment yellow 180	-	77804-81-0	20~30
C.I. pigment yellow 083	Butanamide, 2,2'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(2,1-diazenediyl)]bis[N-(4-chloro-2,5-dimethoxyphenyl)-3-oxo-	5567-15-7	1~10
Bismuth vanadium tetraoxide	-	14059-33-7	1~10

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15minutes and call a doctor/physician.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of wter for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Avoid inhalation of materials or combustion by-products.
- Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away,isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Do not handle until all safety precautions have been read and understood.
- Operators should wear antistatic footwear and clothing.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- [Barium sulfate, natural] : TWA, 50 mg/m3, Inhalable particulate matter (containing no asbestos and <1% crystalline silica)
- [Titanium dioxide] : TWA 10 mg/m3

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.

○ **Eye protection**

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ **Hand protection**

- Wear appropriate glove.

○ **Skin protection**

- Wear appropriate clothing.

○ **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Solid
- Color	Yellow
B. Odor	Not available
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	Not available
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability and Reactivity

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ **(Respiratory tracts)**

- Not available

○ **(Oral)**

- Not available

○ **(Eye·Skin)**

- Not available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ **Acute toxicity**

*** Oral**

- [Barium sulfate, natural] : LD50 > 3000 ㎎/㎏ Rat
- [Titanium dioxide] : LD50 > 10000 ㎎/㎏ Rat
- [C.I. pigment yellow 180] : LD50 > 5000㎎/㎏ Rat
- [C.I. pigment yellow 083] : LD50 > 5000㎎/㎏ Rat

*** Dermal**

- [Titanium dioxide] : LD50 > 10000 ㎎/㎏ Rabbit

*** Inhalation**

- [Titanium dioxide] : LC50 > 6.82 ㎎/ℓ 4 hr Rat

○ **Skin corrosion/irritation**

- Not available

○ **Serious eye damage/irritation**

- Not available

○ **Respiratory sensitization**

- Not available

○ **Skin sensitization**

- Not available

○ **Carcinogenicity**

*** IARC**

- [Titanium dioxide] : Group 2B

*** OSHA**

- Not available

*** ACGIH**

- [Titanium dioxide] : A4

*** NTP**

- Not available

*** EU CLP**

- Not available

○ **Germ cell mutagenicity**

- Not available

○ **Reproductive toxicity**

- Not available

○ **STOT-single exposure**

- Not available

○ **STOT-repeated exposure**

- Not available

○ **Aspiration hazard**

- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [C.I. pigment yellow 083] : LC50 = 45㎎/ℓ 48 hr Oncorhynchus mykiss

○ **Crustaceans**

- [Barium sulfate, natural] : EC50 = 32 ㎎/ℓ 48 hr Daphnia magna
- [Titanium dioxide] : EC50 > 1000 ㎎/ℓ 48 hr

○ **Algae**

- [Barium sulfate, natural] : EC50 = 1890.263 ㎎/ℓ 96 hr

B. Persistence and degradability

○ **Persistence**

- [Barium sulfate, natural] : log Kow = 0.63
- [C.I. pigment yellow 180] : log Kow 4.24 (KowWin estimate)
- [C.I. pigment yellow 083] : log Kow = 7.54

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- [Barium sulfate, natural] : BCF = 3.162
- [C.I. pigment yellow 180] : BCF 10
- [C.I. pigment yellow 083] : BCF = 10

○ **Biodegration**

- [C.I. pigment yellow 180] : (Cut-off value =-0.5669 : Non - biodegradability (BIOWIN 5))
- [C.I. pigment yellow 083] : Biodegradability = 6 (%) 28 day (Non-biodegradability)

D. Mobility in soil

- [C.I. pigment yellow 180] : Koc 36660 (Can be adsorbed in the soil)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other’s waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- Not available

B. Proper shipping name

- Not available

C. Hazard Class

- Not available

D. IMDG Packing group

- Not available

E. Marine pollutant

- Not available

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ **POPs Management Law**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- Not applicable

*** Risk Phrases**

- Not applicable

*** Safety Phrase**

- Not applicable

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- Not applicable

*** EPCRA Section 302 (40CFR355.30)**

- Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- Not applicable

○ **Rotterdam Convention listed ingredients**

- Not applicable

○ **Stockholm Convention listed ingredients**

- Not applicable

○ **Montreal Protocol listed ingredients**

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2015-03-12

C. Revision number and Last date revised

- Not applicable

D. Other

- This MSDS is prepared according to the Globally Harmonized System (GHS).