Material Safety Data Sheet

(This MSDS is prepared pursuant to the provision of Article 41 of the Industrial Safety and Health Law.)

1. PRODUCT AND COMPANY IDENTIFICATION

A. Product Name : **AECO THICKENER**

· Product Code : AD-0020 THICKENER

B. Recommended use of the chemical and restrictions on use

· Recommended use : Fabric Screen printing plastisol inks additive

· Restrictions on use : no data available

C. Company Details

· Manufacturer/Supplier : Aone Co., Ltd

· Address : 14-4, Woogo-Ri, Kwang Jeok-Myun, Yangju-Si, Kyunggi-Do, Korea

· Telephone Number : +82-31-878-9295/6

· Fax Number : +82-31-878-9207

D. Date Revised : June, 20, 2013

E. MSDS Number : #150-1

2. HAZARDS IDENTIFICATION

A. Hazard/Risk Classification

· Specific Target Organ Toxity (Single Expore) : Category 3

B. Label elements including precautionary statements

· Symbol :

· Signal Word : Warning

· Hazard/Risk Statement : H335 May cause respiratory irritation.

· Precautionary Statement

- Prevention : P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
  P271 Use only outdoors or in a well-ventilated area.
- Response : P304 + P340 IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
- Storage : P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
  P405 Store locked up.
- Disposal : P501 Dispose of contents/ container to ...

C. Other Hazard/Risk which are not included in the classification criteria(e.g. dust explosion hazard) :

· NFPA RATINGS (SCALE 0-4) : HEALTH=0, FIRE=1, REACTIVITY=0

3. COMPOSITON/ INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Wt(%)
Synthetic Amorphous, Pyrogenic Silica	112945-52-5	>99.9

4 . FIRST AID MEASURES

A. Eyes : Flush with clean, low pressure water for minutes.

B. Skin : Remove contaminated clothing. Wash skin with soap and water.

C. Inhalation

▶ Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist or in all cases of doubt seek medical advice.

D. Ingestion

▶ In case of excessive ingestion, copious intake of liquids. And seek medical attention.

E. Note to Physician : Treat symptomatically

5. FIRE FIGHTING MEASURES

A. Flash point (°F) : Not determined

B. Flammable Limits

▶ Upper explosion limit : Not determined

▶ Lower explosion limit : Not applicable

C. Auto-ignition temperature : Not determined

D. Extinguishing media : Carbon dioxide blanket, Water spray, dry powder, foam

E. Special Fire Fighting Procedures

▶ Fullface Self-contained breathing apparatus(SCBA)used in positive pressure mode should be worn to prevent inhalation of airbone contaminants.

F. Hazardous combustion products : None

6. ACCIDENTAL RELEASE MEASURES

A. Personal Precautions : Avoid dust formation. Remove all sources of ignition. Ensure adequate ventilation. Use personal protective equipment. See also Section 8.

B. Methods for Cleaning Up : Clean up promptly by vacuum. Use a suitable vacuum cleaner. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labeled containers. See Section 13.

C. Environmental Precautions : No special environmental precautions required. Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

A. Handling : Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Take precautionary measures against static discharge. All metal parts of the mixing and processing equipment must be earthed/ grounded. Ensure all equipment is electrically earthed/ grounded before beginning transfer operations.

B. Storage : Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep at ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. EXPOSURE LIMITS

Amorphous Silica, The regulatory exposure limits are found under the general silica, CAS RN 7631-86-9:

Australia	2 mg/m³, TWA, Respirable
Austria MAK	4 mg/m³, TWA, Inhalable fraction
Finland	5 mg/m³
Germany TRGS 900	4 mg/m³, TWA, Inhalable fraction (a1)
India	10 mg/m³, TWA
Ireland	2.4 mg/m³, TWA, Respirable dust
Norway	1.5 mg/m³, TWA, Respirable dust
Switzerland	4 mg/m³, TWA
UK WEL	6 mg/m³, TWA, Total inhalable fraction 2.4 mg/m³, TWA, Respirable fraction
US OSHA PEL	6 mg/m³

Dust, or Particulates Not Otherwise Specified:

US ACGIH - TLV : 1	0 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable

Belgium	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
China	8 mg/m³, TWA 10 mg/m³, STEL
Italy	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
Malaysia	10 mg/m³, TWA, Inhalable 3 mg/m³, TWA, Respirable
Spain	10 mg/m³, VLA, Inhalable 3 mg/m³, VLA, Respirable

(a1) - In its facilities globally, Cabot Corporation manages to the Germany TRGS 900 occupational exposure limit of 4 mg/m³, TWA, Inhalable fraction.

MAK	Maximale Arbeitsplatzkonzentration (Maximum Workplace Concentration)
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TRGS	Technische Regeln für Gefahrstoffe (Technical Rule for Hazardous Materials)
TWA	Time Weighted Average
US ACGIH	United States American Conference of Governmental Industrial Hygienists
US OSHA	United States Occupational Safety and Health Administration
VLA	Valore Límite Ambientales (Environmental Limit Value)
WEL	Workplace Exposure Limit

B. ENGINEERING CONTROLS

Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate

exhaust ventilation at machinery and at places where dust can be generated.

C. PERSONAL PROTECTIVE EQUIPMENT

- Respiratory Protection
  ▶ Approved respirator may be necessary if local exhaust ventilation is not adequate.
- Hand Protection
  ▶ Repeated exposure may cause skin dryness or cracking. Use protective skin cream before handling the product. Wear suitable gloves.
- Eye Protection
  ▶ Wear eye/face protection. Safety glasses with side-shields. Goggles.
- Skin and Body Protection
  ▶ Wear suitable protective clothing. No special protective equipment required.
- Other
  ▶ Handle in accordance with good industrial hygiene and safety practice. Emergency eyewash and safety shower should be located nearby.

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance : White Powder
B. Odor : None
C. pH : 3.6 - 4.5
D. Vapor Pressure : Not determined
E. Boiling Point/Range : 2230°C
F. Melting Point/Range : 1700°C
G. Water Solubility : Insoluble
H. Density : 2.2 g/cm³ @ 20°C
I. Specific Gravity : Not applicable
J. % Volatile (by Volume) : Not applicable
K. Evaporation Rate : Not determined
L. Viscosity : Not determined
M. Partition Coefficient (n-octanol/water) : Not applicable

10. STABILITY AND REACTIVITY

A. Stability : Stable
B. Hazardous Polymerization : Hazardous polymerization does not occur
C. Mechanical Sensitivity (shock) : Not sensitive to mechanical impact.
D. Conditions to Avoid
  ▶ Keep away from heat and sources of ignition. Avoid dust formation. Product resists ignition and does not promote flame spread.
E. Hazardous Decomposition and/or Combustion Products : None.
F. Static Discharge Effects

▶ Take precautionary measures against static discharges. Avoid dust formation. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations. This material is an inorganic dust and will not create nor support conditions that would result in a dust explosion or fire.

11. TOXICOLOGICAL INFORMATION

A. SKIN IRRITATION : Patch Test(24Hr/Open) : Negative(1%)

B. EYE IRRITATION : May cause transitional slight eyes irritation.

C. SENSITIZATION : No evidence of sensitization

D. ACUTE TOXICITY(LD50) :

LD50(Oral/Rat) : >5g/kg

(estimated by similar dimethylpolysiloxane)

E. ACUTE TOXICITY(LC50) : Not applicable

F. SUBACUTE TOXICITY : No evidence of subacute toxicity in rats or mice.

G. CHRONIC TOXICITY : No significant effects were observed.

H. CARCINOGENICITY:

NTP : Not listed

IARC : Not listed

OSHA REGULATED : Not listed

No evidence of carcinogenicity in laboratory animals

I. MUTAGENICITY : No evidence of mutagenicity.

J. REPRODUCTIVE EFFECT : No information is available.

K. TERATOGENIC EFFECT : No clear evidence of teratogenic effect (estimated)

L. OTHER INFORMATION:

This product can generate formaldehyde at approximately 150 degrees C(300°F) and above in the presence of air. Formaldehyde is a skin and respiratory sensitizer, eye and throat irritant, acute toxicant and potential cancer hazard. So, use adequate ventilation or sear protective equipment sucth as gloves, goggles or protective clothing when this product is heated at approximately 150 degrees C(300°F) and above in the presence of air.

12. ECOLOGICAL INFORMATION

A. Aquatic Toxicity

▶ Fish (Brachydanio rerio) ECO (96 hours): > 10,000 mg/l; (Method: OECD 203)

▶ Daphnia magna ECO (24 hours): > 10,000 mg/l; (Method: OECD 202)

B. ENVIRONMENTAL FATE

- Mobility : Not expected to migrate.
- Bioaccumulation : According to experience not expected.
- Persistence / Degradability

▶ The methods for determining biodegradability are not applicable to inorganic substances.

- Distribution to Environmental Compartments : Not determined.

13. DISPOSAL CONSIDERATIONS

Can be land filled or incinerated, when in compliance with local reaulations.

14. TRANSPORT INFORMATION

A. UN No. : No classification

B. UN proper shipping name : N/A

C. Transport hazard class : N/A

D. Packing group (if applicable) : N/A

E. Marin pollution (yes/no) : N/A

F. Other International Transportation Regulations

·Air Transport (IATA-DGR) : Not subject to IATA-DGR regulations.

G. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises : N/A

15. REGULATORY INFORMATION

Regulatory information is found under the general silica: CAS RN 7631-86-9, EINECS RN 231-545-4.

A. Indication of danger :

Not a hazardous substance or preparation according to the Global Harmonized System (GHS).

B. EU Food Contact Information :

Listed as E551 on and is authorized for use according to EC-Directive 95/2/EC and its various amendments and adaptations. Meets all required purity criteria according to the Joint FAO/WHO Expert Committee on Food Additives (JECFA).

C. Cosmetic Use :

Listed by the Cosmetic, Toiletry and Fragrance Association (CTFA) for use in cosmetics and personal care products.

D. California Proposition 65 :

This product is not listed on California Proposition 65.

E. International Inventories / All components of this product are listed on or exempt from the following inventories :

YES - Australian Inventory of Chemical Substances (AICS)

YES – Canadian Domestic Substances List (DSL)

YES – Chinese Inventory

YES – European Inventory of Existing Commercial Chemical Substances (EINECS)

YES – Japanese Existing and New Chemical Substances (ENCS)

YES – Korean Existing Chemicals List (KECL)

YES – New Zealand Hazardous Substances and New Organisms Act (HSNO)

YES – Philippine Inventory of Chemicals and Chemical Substances (PICCS)

YES – United States Toxic Substances Control Act (TSCA) Inventory

F. Germany Water Endangering Class (WGK) Class

Chemical Name

Synthetic Amorphous, pyrogenic Silica nwg (not water endangering) : 849

G. Switzerland Giftklasse (Posion Class) Toxic Category

Chemical Name

Synthetic Amorphous, Pyrogenic Silica ... (tested and found to be not toxic) : G-8311

16. OTHER INFORMATION

- These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recomme -ndations in the specific context of the intended use and determine whether they are appropriate.