Hyosung Chemical Corporation

Materials Safety Data Sheet

1. PRODUCT AND COMPANY INFORMATION

Product name : M33AG2Y-WH0 (Polyketone)

Company : Hyosung Chemical Corporation

Address : #65, 487beon-gil, Cheoyong-ro, Nam-gu, Ulsan, 44784, Republic of Korea

Telephone : +82 52 208 9000

Fax : +82 52 208 9195

Website : http://www.poly-ketone.com

Recommended use of the chemical and restrictions on use

Recommended use : Raw materials for plastic goods

Restrictions on use : No data available

2. HAZARDS IDENTIFICATION

Globally Harmonized System of Classification and Labelling of Chemicals(GHS)

Physical hazard : Not applicable

Health hazard : Not applicable

Environment hazard : Not applicable

Label elements including precautionary statements

Symbol : Not applicable

Signal word : Not applicable

Hazard statements : Not applicable

Precautionary statements : Not applicable

NFPA Rating

Health : 0 Flammability : 1 Reactivity : 0 Water reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS No.	EINECS No.	Conc. %
1-Propene, polymer with carbon monoxide and ethene	88995-51-1	No data available from ECHA	> 80.5 %

Additives	-	-	< 1.5 %
S1(Business secret)	Business secret	Business secret	< 10.0 %
Glass, oxide	65997-17-3	-	< 7.0%
Titanium dioxide	13463-67-7	236-675-5	< 1.0 %

4. FIRST AID MEASURES

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

In case of skin contact

Wash off with soap and plenty of water.

If inhaled

If breathed in, move person into fresh air.

If not breathing, give artificial respiration.

If swallowed

Never give anything by mouth to an unconscious person.

Potential health effect

May be harmful if swallowed.

Other medical attention.

Medical personnel should be aware of the protective measures of the substance.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point : No flash occurred under 93 ℃ (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 250 ℃

Burning rate : < 0.7 mm/s (UN TDG test & criteria - Test N1)

Suitable extinguisher

Water spray, alcohol-resistant foam, dry chemical, carbon dioxide

Specific hazards arising from the chemical

No data available

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Remove all sources of ignition.

Ensure adequate ventilation.

Avoid breathing dust.

Avoid contact with skin and eyes.

Wear protective gloves/protective clothing/eye protection/face protection.

Environmental precautions

Don't dispose the product into drainages.

Methods and materials for containment and cleaning up

Pick up and arrange disposed materials without creating dust.

Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Remove all sources of ignition.

Provide appropriate exhaust ventilation at places where dust is formed.

Do not eat, drink or smoke when using this product.

Avoid breathing dust.

Avoid contact with skin and eyes.

Wear protective gloves/protective clothing/eye protection/face protection.

Conditions for safe storage

Keep container tightly closed.

Avoid heat sources, and strong oxidizing agents.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Components with workplace control parameter

KOSHA :

Chemical Name	TWA	STEL
Titanium dioxide	10 ㎎/㎥	-
Glass, oxide	5 ㎎/㎥	-

US ACGIH : No data available

Appropriate engineering controls : Ventilation

Personal protective equipment

Respiratory protection : Dust mask

Hand protection : Protective gloves

Eye protection : Protective goggles

Skin and body protection : Working clothes

9. PHYSICAL AND CHEMICAL PROPERTIES

State : Solid at 20 ℃

Appearance : Pellets

pH : 6.5 ~ 7.5 at 20 ℃ ※ Sample : H_2O = 1 : 5 (*V/V*)

Flash point : No flash occurred under 93 ℃ (Rapid equilibrium method)

Autoignition temperature : No spontaneous combustion under 250 ℃

Water solubility : Water Insoluble at 20 ℃

Density : 1.266~1.326 at 20 ℃

Melting range : > 130 ℃

Flammability

Burning rate : < 0.7 mm/s ※ UN TDG test & criteria - Test N1

Explosive properties : No self-reaction hazard ※ UN TDG test & criteria - Test E3

Boiling point (Initial) : No data available

Vapour pressure : No data available

Decomposition temperature : No data available

Partition coefficient (*n-octanol/water*) : No data available

Viscosity : No data available

Lower explosion limit / Upper explosion limit : No data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under general condition.

Conditions to avoid

Avoid breathing dust.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral	rat	LD50 : No data available	※ from US NLM / ECHA
Inhalation	rat	LC50 : No data available	

Skin rabbit LD50 : No data available

Skin irritation : Not classifiable ※ from US NLM / ECHA

Eye irritation : Not classifiable ※ from US NLM / ECHA

Respiratory sensitization : No data available

Skin sensitization : No data available

Germ cell mutagenicity : No data available

Carcinogenicity :

- Powder 100% of Titanium dioxide

: In lifetime inhalation studies eats were exposed for 2 years to respectively 10, 50 and 250 mg/m3 of respirable TiO2. Slight lung fibrosis was observed at 50 and 250 mg/m3 levels. Microscopic lung tumours were also observed 13 Percent of the rats exposed to 250mg/m3 , an exposure level that caused lung overloading and impairment of rat lungs clearance mechanisms.

In further studies, these tumours were found to occur only under particle overload conditions in a uniquely sensitive species, the rat, and have little or no relevance for humans. The pulmonary inflammatory response to TiO2 particles exposure was also found to be much more severe in rats than in other rodent species.

In February 2006. IARC has re-evaluated Titanium dioxide as pertaining th Group 2B' "possibly carcinogenic th humans", based upon inadequate evidence in humans and sufficient evidence in experimental animals for the carcinogenicity of titanium dioxide.
IARC evaluation guidelines consider the generation of tumours, in 2 different studies within the same animal species, to be adequate criteria for an assessment of sufficient evidence.

The conclusions of several epidemiology studies on more than 20000 TiO2 industry workers in Europe and the USA did net suggest a carcinogenic effect of TiO2 dust on the human lung. Mortality from other chronic diseases, including other respiratory diseases, was also not associated with exposure to TiO2 dust.

Bases upon all available study result, Dupont(Chemours) scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace. (Dupont MSDS reference)
So, Titanium dioxide is less than 1.0% Pellet (Chip) form of this product conclude that there is no harm to humans.

Reproductive toxicity : No data available

Specific target organ toxicity - single exposure (GHS) ※ from US NLM / ECHA - -

- Powder Titanium dioxide in 100% condition may cause respiratory irritation.

However, there is no data on the toxicity of the pellet(Chip) type containing less than 1.0% of titanium dioxide.

Specific target organ toxicity - repeated exposure (GHS) ※ from US NLM / ECHA

- Powder Titanium dioxide when 100% state through prolonged or repeated exposure may cause damage to the body (respiratory system).

However, there is no data on the toxicity of the pellet(Chip) type containing less than 0.5% of titanium dioxide.

Aspiration hazard : No data available

12. ECOLOGICAL INFORMATION

Toxicity

Fish	LC50 :	No data available	※ from US NLM / ECHA
Crustacean	EC50 :	No data available	
Algae	EC50 :	No data available	

Persistence and degradability : No data available

Bioaccumulative potential : No data available

Mobility in soil : No data available

Other adverse effects : No data available

13. DISPOSAL CONSIDERATIONS

Disposal consideration

Observe all environmental regulations.

Disposal precaution

Avoid disposing to the environment.

14. TRANSPORT INFORMATION

UN TDG : Not dangerous goods

IATA : Not dangerous goods

IMDG : Not dangerous goods

Marine pollution : Not applicable

Special precaution

Fire EmS Guide : F-E (Recommendation)

Spillage EmS Guide : Not dangerous goods

15. REGULATORY INFORMATION

Korea Industrial Safety and Health Act (GHS) : Not applicable

Korea Hazardous Materials Safety Control Act : Not hazardous material

Korea Chemicals Control Act : Not toxic chemical

Korea Persistant Organic Pollutants Control Act : Not applicable

US OSHA Hazard (GHS) : Not applicable

16. OTHER INFORMATION

Issued Date : 2017.06.27.

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Revision Date : 2018.12.26.

References

- GHS Classification :

  Korea MSDS Testing Lab Certificate (Report No. 2016-03-002366), US NLM

- Physical and chemical properties : Korea MSDS Testing Lab Certificate
- Transport information : Korea MSDS Testing Lab Certificate
- Toxic & ecological information : OECD SIDS, ECHA, US NLM, HSDB, IARC, CCRIS, JP NITE

Acronyms and Websites

- ECHA : European chemical agency, http://echa.europa.eu/
- US NLM : U.S. National Library of Medicine, http://chem.sis.nlm.nih.gov/chemidplus/
- HSDB : US Hazardous Substances Data Bank, http://toxnet.nlm.nih.gov/
- CCRIS : US Chemical Carcinogenesis Research Information System, http://toxnet.nlm.nih.gov/
- IARC : International Agency for Research on Cancer, http://monographs.iarc.fr/
- JP NITE : Japan National Institute of Technology and Evaluation, http://www.safe.nite.go.jp/

※ Hazards Testing and Classification

Korea MSDS Testing Laboratory

Website : www.msdskorea.com

Telephone : +82 31 337 3701 / 3702

Address : #12, Iwon-ro, Ihdong-myeon, Cheoin-gu, Yongin-city, Gyeonggi-do, Republic of Korea

The product composition is provided by the mentioned company of this SDS' section 1.
This SDS is composed in line with The Korea Occupational Safety and Health Act Article 41 to protect the health of the employees, and for documentation.
This SDS is composed with reference to documents and criteria provided by KOSHA.

- End -