

物質安全資料表

依 GHS

MAKROLON OD 2015

版本號 2.6

修訂日期 16.07.2013

印出日期 28.01.2014

一、物品與廠商資料

產品鑒別

物品中英文名稱 : MAKROLON OD 2015

物質或混合物的建議用途與使用限制

建議用途及使用限制 : 模鑄塑膠物品的生產

物質安全資料表供應商的詳細資料:

Bayer MaterialScience AG
BMS-IO-S&T-PSRA-PSI Product Safety
51368 Leverkusen, Germany

Tel: +49 214 30 25026

Fax: +49 214 30 9650035

e-mail: productsafety@bayerbms.com

緊急聯絡電話號碼: 0800-008-119 或 0800-055-119(僅限化學品洩漏、火災或人員中毒)

緊急傳真 : (03)591-0030 或 (03)591-0032

台灣拜耳材料科技股份有限公司

83245高雄市林園區北汕里石化三路1號

電話:(02) 8101-1000 傳真:(02) 8101-0028

二、危害辨識資料

物質或混合物的分類

物品危害分類:

依據GHS分類不屬於危害物質。

危害圖式

依據GHS分類不屬於危害物質。

三、成分辨識資料

產品類型: 混合物

雙酚A聚合之聚碳酸酯

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四、急救措施

急救措施說明

若接觸皮膚: 接觸到熱的熔化物: 立即用大量水冷卻。切勿強行拔除熱熔物在皮膚上形成的硬皮或塗抹溶劑於受傷的皮膚上。應立即送醫, 處理可能的灼傷及做適當的皮膚照顧。

以下資訊與室溫下運作本產品有關。若接觸皮膚, 以肥皂及大量清水徹底清洗受影響部位。

五、滅火措施

適用滅火劑: 噴灑水柱, 滅火乾粉, 二氧化碳(CO₂), 泡沫, 化學乾粉

物質或混合物的特殊危害:

燃燒會釋放出一氧化碳, 二氧化碳, 氮的多種氧化物和微量的氰化氫。在著火或爆炸情況下, 請勿吸進濃煙。

消防人員注意事項::

消防員應穿著自攜式呼吸器具。

勿讓受污染的消防水流進土壤、地下水、或地表水。

六、洩漏處理方法

個人預防、保護裝備與緊急程序: 小心滑倒!

污染與清理方法與材料: 用機械設備搬運。防止粉塵的生成。

其他章節參照: 進一步廢棄措施參見章節13。

七、安全處置與儲存方法

安全操作的預防措施:

在建議的製程情況下可能會釋出少量殘存的單體及殘留的溶劑。提供良好的通風及/或使用局部抽排氣系統, 以不致超過第 8 章節所規範工作場所之界限值。

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粉塵應使用有效率的抽排氣設備予以移除。

勿飲食及抽煙。休息前或工作結束後須洗手並使用皮膚防護軟膏。更換受污染衣物。

安全儲存的條件(包括任何不相容性):

對儲存條件無特殊要求。

八、暴露控制及個人防護措施

當運作本產品，特別是在高溫下運作時，應遵守與下列物質相關之法規。依據我們的經驗，於蒸氣可能生成處，提供有效的新鮮空氣與抽排氣設備，將能確保符合下列的容許限值。

控制參數

純物質	化學文摘社登記號碼 (CAS-No.)	基準	類型	值	最高容許濃度 (CEILING)	備註
酚 phenol	108-95-2	TW OEL	八小時日時量平均容許濃度 (TW)	5 ppm 19 mg/m ³		
酚 phenol	108-95-2	TW OEL				可能經皮膚吸收。
氯苯 chlorobenzene	108-90-7	TW OEL	八小時日時量平均容許濃度 (TW)	75 ppm 345 mg/m ³		

暴露控制**呼吸防護:**

當有粉塵生成時，依據EN 143使用含有P1微粒過濾呼吸器。

手部防護:

合適的安全手套材料；EN 374:

聚氯乙烯 - PVC(>= 0.5毫米)

若手套被污染和/或損壞了則必須更換。

眼睛防護:

配戴眼睛防護具/防護面罩。

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皮膚及身體防護:
穿合適的防護服。

九、物理及化學性質

基本物理與化學屬性相關資訊

物質狀態:	顆粒
顏色:	依據染色而不同
氣味:	無臭味
pH值:	不適用
軟化點:	> 130 - 160 °C
較高/較低易燃性或爆炸界限:	不適用
蒸氣壓:	不適用
密度:	大約 1.2 - 1.4 g/cm ³
容積密度:	600 - 700 kg/m ³
水溶性:	實際上不溶
自燃溫度:	不適用
燃點:	> 450 °C
分解溫度:	>= 380 °C
動態黏度:	不適用

十、安定性及反應性

化學穩定性: 不適當製程或燃燒所導致的過度加熱，可能釋出對健康有害的煙煙。

危險反應的可能性: 未發現有危害性反應

危害性分解物: 因悶燒或不完全燃燒，可能會生成主要由一氧化碳和二氧化碳所組成的毒性煙煙。

十一、毒性資料

依據我們的經驗與資訊，若適當地運作，本產品不會對健康有危害。

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十二、生態資料

勿讓溢出之本品進入水道，廢水或土壤。

更多關於生態毒性的資訊：

本產品幾乎不溶於水。因其堅硬度及不溶於水的特性，若適當地運作本產品，則預期並不會有生態問題。本產品不易被生物分解。

十三、廢棄處置方法

應依國際、國家及當地適用的法律、法令與法規廢棄。

在歐盟國家廢棄處置，應依據歐洲廢棄物分類(EWC)編碼採用合適之分類編碼。

廢料處理方法

容器儘可能地清空後(如傾倒、切削或排空直到"滴乾")，將其送至化學業現行回收系統所設置的合適回收點回收。容器應依照國家法令及環境相關法規回收。

本產品可採機械式回收。在經過適當處理後，本產品可以再熔化，並再重新製作為新的模塑製品。但僅在材質已被選擇性分類回收並依據其種類仔細區隔情況下，才可採機械式回收再利用。

十四、運送資料

臺灣	非危險貨物
IATA	非危險貨物
IMDG	非危險貨物
使用者特殊預防措施	: 非危險貨物, 保持乾燥。

十五、法規資料

專門針對物質與或混合物為主的安全、健康與環境規定/立法



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適用法規:

勞工安全衛生法

危險物與有害物標示及通識規則

道路交通安全規則

廢棄物清理法

十六、其他資料

此物質安全資料表也適用於對應的MAS... 類型。

製表單位：台灣拜耳材料科技股份有限公司

地址：11049台北市信義路五段7號54樓

電話：(02)8101-1000

製表人：

職稱：品質暨環保部經理

姓名(簽章)：黃元隆

其他相關訊息

此安全技術說明書提供的信息在其發布之日是準確無誤的,所給出的信息僅作為安全搬運,儲存,運輸,處理等的指導,而不能被作為擔保和質量指標。此信息僅適用於指定的物質而不能用於其它相關的物質,除非特別指明。

Material Safety Data Sheet

Date of making : 25 Jan. 2013

1.Substance identity and company contact information

Product name: Conductive ZnS-SiO₂ Target
 Company: MMC ELECTRONIC MATERIALS TAIWAN CO., LTD.
 Address: NO.20-1,JIANGUO RD., TANZIH DISTRICT, TAICHUNG CITY 42760, TAIWAN (R.O.C)
 Telephone Number: 886-4-25320173
 Emergency Telephone Number: 886-4-25320173
 FAX Number: 886-4-25324777
 Recommended use and restraint: Sputtering Target

2.Hazards identification

GHS classification

Physical and chemical hazards	Sort of Gunpowder	Out of classification	
	Combustibility, Ignition gas	Out of classification	
	Combustibility, Ignition aerosol	Out of classification	
	Oxidizing gas	Out of classification	
	High pressure gas	Out of classification	
	Ignition liquid	Out of classification	
	Combustibility solid	Out of division	
	Self reaction chemical	Out of classification	
	Spontaneous combustion liquid	Out of classification	
	Spontaneous combustion solid	Out of division	
	Self heating chemical	Out of division	
	Water reaction combustibility chemical	Out of division	
	Oxidizing liquid	Out of classification	
	Oxidizing solid	Impossible to classify	
	Organic dioxide	Out of classification	
	Metal corrosive substance	Impossible to classify	
	Adverse human health effects	Acute toxicity(Oral)	Out of division
		Acute toxicity(Dermal)	Out of division
		Acute toxicity(Inhalation:Gas)	Out of classification
		Acute toxicity(Inhalation:Steam)	Out of classification
		Acute toxicity(Inhalation:Dust)	Impossible to classify
		Acute toxicity(Inhalation:Mist)	Out of classification
Skin corrosive, Irritation		Impossible to classify	
Heavy injuries to eyes, Irritation		Impossible to classify	
Sensitization of respiratory organs		Impossible to classify	
Sensitization of skin		Impossible to classify	
Variation of germ cell		Out of division	
Carcinogenicity		Division1A	
Genital toxicity		Impossible to classify	
Specific target organs, General toxicity (Single exposure)		Division1 (Respiratory organs)	
Specific target organs, General toxicity (Repetition exposure)	Division1 (Respiratory organs, kidneys)		
Environmental effects	Hazardous of Inhalational respiratory organs	Impossible to classify	
	Acute hazardous top the aquatic Environmental	Out of division	
	Chronic hazardous top the aquatic Environmental	Out of division	

Label element

Symbol:



Alert Words:

Danger

Hazards information:	<p>Inhalation: hazardous. Likely to get cancer. Impediment of the respiratory organs. Impediment of the respiratory organs and kidneys by long-term or repetition exposure.</p>
Caution:	<p>【Safety Measure】 Get the instruction manual before use. Not to handle until understand all safety directions. Wear appropriate protections (gloves, eyeglasses, dustproof mask). Use well ventilated area only and set up partial ventilation system according to the circumstances. Wash hands and face carefully and gargle after use. Avoid exposure by using personal protective equipment and ventilation system. Not to inhale dust and fumes. Not to do eating, drinking and smoking while using.</p> <p>【First aid】 If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician. In case of an exposure or risk of it, arrange for transport to nearest medical facility for examination and treatment by a physician.</p> <p>【Storage】 Store in warehouse with roof and not to contact water, humidity or acid gas. Store in locked place.</p> <p>【Disposal】 Obey the relevant law as to the disposal of wastes.</p>

3. Chemical composition and data on components

Chemical substance

	[ZnS]	[SiO ₂]
Chemical composition:	ZnS	SiO ₂
Other name :	No information	No information
Element:	ZnS (Zinc Sulfide)	Crystalline silica, quartz
Chemical distinction (Chemical formula or structure formula):	No information	No information
CAS No:	1314-98-3	14808-60-7
Reference Number in Gazetted List in Japan:	PRTR: 1-572	(1)-548
Contamination and stable additive contribute classification:	No data	No information
Concentration or concentration range:	No information	No information

4. First-aid measures

Inhalation:	Move sufferers to place filled with fresh air, and let repose with posture easy to breath. Blow nose and gargle. Arrange for transport to nearest medical facility for examination and treatment by a physician.
Skin contact:	Flushing with water and soap immediately. Arrange for transport to nearest medical facility for examination and treatment by a physician immediately.
Eye contact:	Gently rinse the affected eyes with clean water. In case of wearing contact lens, better to remove them. If irritation persists, arrange for transport to nearest medical facility for examination and treatment by a physician. Arrange for transport to nearest medical facility for examination and treatment by a physician immediately.
Ingestion:	Arrange for transport to nearest medical facility for examination and treatment by a physician immediately. If ingest in quantity, drink water or saline solution and spit out. Rinse mouth with water.
Expected acute symptom or in behind:	If ingest in quantity, likely to cause vomit, diarrhea, stomachache, fever and joint pain. Likely to irritate skin, eyes, bronchus and nose and cause inflammation. Inhalation: cough.
Most important indications or symptom:	No data
Protection for rescuer:	No data

5. Fire-fighting measures

Extinguish media:	Incombustible itself. Fire of the periphery: Use extinguish media according to the fire circumstances.
Forbidden extinguish media:	No information
Special hazards:	Occurrence of dust. Likely to slide if powder remaining on the floor by water used for extinction. Containers are likely to explode by heating.
Special extinguish way:	Move containers from fire area if not in danger. In case of impossible to move, sprinkle containers and the periphery to cool.
Protection for fire-fighters:	Fire-fighters should wear proper protective(heat-resistant) and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Wear protective eyeglasses and respirators to avoid inhaling dust.

6. Accidental release measures

Caution for the human body, protective and emergency measure:	Ventilate sufficiently until complete disposal. (Indoors) Keep out without authorized personnel. Use proper personal protective equipment as indicated in Section 8 to avoid contacting eyes and skin or inhalation of gas or fumes. Stay windward. Leave lowland areas. Isolate all direction with appropriate distance as leakage area immediately.
Caution for the environment:	Caution not to affect the environment by discharging rivers. Avoid emitting to the environment.
Retrieve, Neutralization:	Sweep leakages and retrieve empty containers. Afterward dispose it. Prevent dispersion by moistening with water. After that, flush with a mass of water. (Caution: Avoid emitting to the environment.)
Containment and cleaning way :	Stop leaking if not in danger. Prevent from discharging rivers by piling up with sandbags.
Prevention of secondary disaster:	Dispose frequently. Likely to slide if remaining on the floor . Remove All ignition source immediately. (Smoking nearby, spark and flame is prohibited.)

7. Handling and storage**Handling:**

Technical measure:	Do appropriate engineering controls and use proper personal protective equipment as indicated in Section 8.
Ventilation:	Do appropriate ventilation as indicated in Section 8.
Caution for safety handling:	Get the instruction manual before use. Not to handle until understand all safety directions. Make the work place well ventilated and use partial ventilation systems where dust occurs. (Indoors) Wash hands carefully after use. Not to contact, inhale and swallow. Use adequate ventilation(exhaust) to keep airborne concentrations under the limit of exposure. Not to do eating, drinking and smoking while using.
Avoidance of contact:	Refer to Section 10.

Storage:

Technical measure:	Set up facilities equipped with adequate lighting and ventilation to store and handle dangerous objects in storage place.
Hazardous Polymerization:	Refer to Section 10.
Conditions to storage:	Not to contact acid gas. Store in warehouses with a roof. Avoid high temperature and high humidity. Store in locked place.
Materials of containers or package:	Glass, polyethylene, polypropylene etc. Keep in closed and undamageable package, but no regulation of package or containers.

8. Exposure control and personal protection

Control concentration:	Not set.
Allowance concentration (Exposure limit, Biological exposure indicator) :	
ACGIH	ZnS: Not set.
ACGIH (2006ver.)	TLV-TWA SiO ₂ : 0.025mg/m ³ A2
Engineering Controls:	Make the work place well ventilated and set up partial ventilation systems where dust occurs. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations under the limit of exposure. In case of occurring dust or fume in high temperature process, set up ventilation device to keep air pollutive substances under control concentration.
Personal Protective Equipment:	
Respiratory organs:	Use appropriate respirators (dustproof mask).
Hands:	Wear appropriate protective gloves.
Eyes:	Wear appropriate protective eyeglasses (standard glasses with side board type, goggles type, side shield type)
Skin and Body:	Wear appropriate protective clothing and face protections.
Sanitary measure:	Wash hands carefully after use.

9. Physical and chemical properties

	[ZnS]	[SiO ₂]
Appearance, physical state, form, color:	White to yellow, powder	Colorless, white or black, purple, green discoloration crystal
Odor:	Odorless	No data
pH:	No data	No data
Melting point, Coagulating point:	1180°C (sublimation)	1610°C (Melting point)
Boiling point, Initial boiling point and Boiling range:	Sublimation	2230°C (Boiling point)
Flash point:	Incombustible	Incombustible
Explosion range:	No data	No data
Steam pressure:	No data	10mmHg (1732°C) [conversion value 1333Pa(1732°C)]
Steam density(Air=1):	No data	No data
Specific Gravity:	4.1g/ml	2.5
Solubility:	0.065mg/100 H ₂ O(at 18°C)	Insoluble
Octanol/Water Partition Coefficient:	No data	No data
Spontaneous combustion temperature:	No data	Incombustible
Decomposition temperature:	Sublimation	No data
Threshold of odor:	No information	No data
Evaporation speed (Butyl acetate= 1):	No data	No data
Combustion property (Solid, Gas):	No data	No data
Viscosity:	No data	No data

10. Stability and reactivity

[ZnS]

Chemical Stability:	Considered as stable under storage and handling conditions at law. Sublime by heating. Oxide gradually in the air and generate zinc sulfate. (In case of containing water)
Incompatibilities with Other Materials:	No data
Conditions to Avoid:	Sunlight, heat.
Hazardous Polymerization:	Strong acid.
Hazardous Decomposition Products:	Sulfur oxide, hydrogen sulfate.

[SiO₂]

Chemical Stability:	Stable under the normal handling conditions. (room temperature)
Incompatibilities with Other Materials:	React with strong oxidizing agents and likely to cause fire and explosion. React with hydrogen fluoride
Conditions to Avoid:	Diffusion of dust.
Hazardous Polymerization:	Strong oxidizing agents, hydrogen fluoride
Hazardous Decomposition Products:	Nothing

11.Toxicological information

[ZnS]

Acute toxicity:	Oral:	Out of division
	Dermal:	Out of division
	Inhalation (steam) :	Impossible to classify
	Inhalation (dust, mist) :	Impossible to classify Likely to irritate nose, throat and tracheas.

Skin corrosive, Irritation: No data

Heavy injuries to eyes* No data

Irritation:

Sensitization of respiratory organs or skin: No data

Variation of germ cell : No data

Carcinogenicity: No data

Genital toxicity: No data

Specific target organs, General toxicity: No data

(Single exposure):

Specific target organs, No data

General toxicity:

(Repetition exposure):

Hazardous of Inhalational respiratory organs : No data

[SiO₂]

Acute toxicity: Oral Impossible to classify because of insufficient data.

Dermal No data

Inhalation No data

Skin corrosive, Irritation: No data

Heavy injuries to eyes* Impossible to classify

Irritation:

Sensitization of respiratory organs or skin: Sensitization of respiratory organs: No data

Sensitization of skin: No data

Variation of germ cell : Out of division

Carcinogenicity: Division1A

Likely to get cancer.

IARC Group1 (Carcinogenic for human body.)

Genital toxicity: No data

Specific target organs, Division1 (Respiratory organs)

General toxicity:

(Single exposure):

Impediment of the respiratory organs.

Specific target organs, Division1 (Respiratory organs, kidneys)

General toxicity:

(Repetition exposure):

Hazardous of Inhalational respiratory organs : No data

12.Ecological information

Acute hazardous top the aquatic Environmental: Out of division

Chronic hazardous top the aquatic Environmental: Out of division

13. Disposal considerations**The rest of waste:**

Obey the relevant law as to the disposal of wastes.

Dispose by manufacturers in case of returning backing plate etc. to reuse.

14. Transport information**IMAG(P.4157)Class**

None Known.

ICAO/IATA:Class

None Known.

UN/NA

None Known.

15. Regulations**US federal regulations**

No information

TSCA is not required.

International regulations

No information

Canadian Domestic

No information

Substance list:

None known.

Information about limitation of use: For use only by technically qualified individuals.

16. Other information

The information is revised by the new knowledge. Although the information herein is based on the best of our knowledge, we cannot guarantee the accuracy or completeness of the information contained.

Material Safety Data Sheets (SDS)

1. Chemical Product and Company Identification

Material Name : Alloy of aluminum and titanium
Other names : -
Lot no. : -
Recommended uses and restrictions on the use : Restricted to be used on sputtering machine
Company name : THINTECH MATERIALS TECHNOLOGY CO.,Ltd LUKE BRANCH Company address : No.1, Luke 8th Rd., Lujhu Dist., Kaohsiung City 821, Taiwan (R.O.C.) Company tel : 886-7-695-5125
Emergency Tel / Fax : 886-7-695-5125 / 886-7-695-5205

2. Hazards Identification

Hazard overview : Dangerous when wet substances 2
Marked content : 1.Symbol : Flame 2.Warnings : Danger 3.Hazard Warning Information : Water emit flammable gases 4.Hazard Prevention Measures : Keep container dry Do not add water to this product

3. Composition, Information on Ingredients

CAS#	Chemical Name	Percent
7429-90-5	Aluminum	≥ 98%
7440-32-6	Titanium	≤ 2%

4. First aid Measures

Different exposure pathways, first aid :
Eye contact : 1. Rinse for 10 minutes. 2. Go to hospital.
Skin contact : Wipe off the dust on the skin.
Inhalation : 1. Removal of sources of pollution or the victim to fresh air. 2. Go to hospital.
Ingestion : 1. Patients lose consciousness, do not feeding. 2. Do not induce vomiting. 3. Drink 240 ~ 300 ml of water to dilute stomach substance. 4. Go to hospital.
The most important symptoms and hazardous effects : Stimulus will be generated due to friction.
Aid Personal Protection : Wear Class C protective equipment to first aid in the safe zone.
Tips for physicians : -

5. Fire Fighting Measures

Suitable Extinguishing Media : Small fire: sand, talc, sodium chloride. Big fire: Isolate the fire and allow it to continue to burn to completion.
Special hazards that may be encountered when extinguishing a fire : 1. Dust in the air, the formation of explosive mixtures. 2. Accumulation of aluminum titanium powder, if wet self-heating; particles decreases harmful increase.
Special fire fighting procedures : 1. Security case the container away from the fire. 2. Exposed to fire mist cooling tanks or containers.
Special protective equipment for fire-fighters : -

6. Accidental Release Measures

Personal precautions : 1. The polluted area completely clean before, restrict access to the area. 2. Determine the clean-up by trained personnel responsible for. 3. Wear appropriate personal protective equipment.
The environment precautions : 1. Ventilation. 2. Extinguish or remove all ignition sources.
Clean-up methods : 1. Remove all ignition sources. 2. Wear the personal appropriate protective equipment. 3. Do not touch the leaking substance. 4. If there is no danger of trying to resistance omission. 5. Leaking

substance shovel into clean, dry container, stamped and plus mark. 6. Washed with water leaking District. 7. Combustible materials (paper, wood, oil, clothing, etc.) to be away from the leaking substance.

7. Handling and Storage

Handling conditions: Away from all possible sources of ignition and incompatible substances.
Storage: Keep container in a dry, cool, well-ventilated area.

8. Exposure Controls, Personal Protection

Engineering controls: Use adequate ventilation or local exhaust.

TWA	STEL	CEILING	BEIs
-	-	-	-

Personal protective equipment :

Hand protection: Protective gloves.

Respiratory protection: 1. Often exposed to dust: with anti-dust, mist, fume medium power air clean respiratory protective equipment, a full-face respirator with high efficiency filter media tools. 2. Unknown concentration: full-face positive pressure self-contained respirator.

Eye protection: Chemical safety goggles.

Skin protection: Protective clothing.

Health measures: 1. After work as soon as possible, remove the contaminated clothing and wash before reuse or discard, and shall inform the laundry personnel contamination of hazardous. 2. Workplace non-smoking or diet. 3. Wash hands thoroughly after handling this substance. 4. Keep the work area clean.

9. Physical and Chemical Properties

Physical State: Solid, Silver color	Odor : -
The olfactory thresholds : -	Melting point : 800 - 950 °C
PH: -	Boiling point / range : 2467 °C
Flammability(Solid 、 Gas) : -	Flash Point : -
Decomposition temperature : -	Test methods : -
Ignition temperature : -	Explosion limits:-
Vapor pressure : -	Vapor Density : -
Density : 2.71 g/cm³	Solubility : Insolvable in water
Octanol / water partition coefficient : -	The evaporation rate : -

10. Stability and Reactivity

Stability: Stable

Hazardous polymerization: None

Conditions to avoid: Avoid contacting strong oxidizer, strong acids and strong bases.

Materials to avoid: Strong oxidizer, Strong acids, Strong bases.

Combustion Products from fire: None

11. Toxicological Information

Routes of exposure: Inhalation, skin contact, eye contact

Symptoms: Irritation

Acute toxicity:-

Chronic toxicity or long-term toxicity:-

12. Ecological Information

Ecotoxicity : -

Persistence and degradability : -

Bioaccumulative : -

Mobility in the soil : -

Other adverse effects : -

13. Disposal Considerations

Waste Disposal Method: 1. Handling, refer to the current regulations. According to the storage conditions to store the waste. 3. Buried. 4. Continuous improvement system recovery.

14. Transport Information

UN:-
UN shipping name:-
Transportation hazard classification:-
Packing Group:-
Marine pollutant (yes / no):-
Special transport methods and precautions:-

15. Regulatory Information

<p>Applicable laws and regulations: :</p> <ol style="list-style-type: none"> 1. Enforcement Rules of the Labor Safety and Health Act. 2. General rules marked for dangerous and harmful substances. 3. Dangerous chemical material symbol . 4. Standards of Permissible Exposure Limits of Airborne Hazardous Substances in Workplace. 5. Regulations of traffic. 6. Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste.
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16. Other Information

References	GHS(Global Harmonized System)		
Production of a form unit	Company name : THINTECH MATERIALS TECHNOLOGY CO .,Ltd LUKE BRANCH		
	Company address : No.1, Luke 8th Rd., Lujhu Dist., Kaohsiung City 821, Taiwan (R.O.C.) Company Tel : 886-7-695-5125		
Production of a form people	Titles : ESH Associate Engineer	Name : Tseng Wen-Xia	
The date of the production form	2012.12.18	Version	1
Remarks	The symbol "-" represents that the above information is no relevant information, while the symbol "/" represent the field of the substance does not apply.		

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Material Safety Data Sheet

Date of making : 28 Feb. 2011

1.Substance identity and company contact information

Product name: InAgSbTe Target
 Company: MITSUBISHI MATERIALS CORPORATION
 Address: KFC Bldg.8F,1-6-1,YOKOAMI,SUMIDA-KU,TOKYO 130-0015
 Telephone Number: 81-3-5819-7320
 Emergency Telephone Number: 81-79-568-2300(MITSUBISHI MATERIALS Co. Sanda Plant)
 FAX Number: 81-3-5819-7321
 Recommended use and restraint: Sputtering Target

2.Hazards identification

GHS classification

Physical and chemical hazards	Sort of Gunpowder	Out of classification	
	Combustibility, Ignition gas	Out of classification	
	Combustibility, Ignition aerosol	Out of classification	
	Oxidizing gas	Out of classification	
	High pressure gas	Out of classification	
	Ignition liquid	Out of classification	
	Combustibility solid	Out of division	
	Self reaction chemical	Out of classification	
	Spontaneous combustion liquid	Out of classification	
	Spontaneous combustion solid	Out of division	
	Self heating chemical	Out of division	
	Water reaction combustibility chemical	Out of division	
	Oxidizing liquid	Out of classification	
	Oxidizing solid	Out of classification	
	Organic dioxide	Out of classification	
	Metal corrosive substance	Out of division	
	Adverse human health effects	Acute toxicity(Oral)	Division3, 5
		Acute toxicity(Dermal)	Out of division
		Acute toxicity(Inhalation:Gas)	Out of classification
		Acute toxicity(Inhalation:Steam)	Out of classification
		Acute toxicity(Inhalation:Dust)	Impossible to classify
Acute toxicity(Inhalation:Mist)		Out of classification	
Skin corrosive, Irritation		Division2	
Heavy injuries to eyes, Irritation		Division2A-2B	
Sensitization of respiratory organs		Impossible to classify	
Sensitization of skin		Division1	
Variation of germ cell		Impossible to classify	
Carcinogenicity		Impossible to classify	
Genital toxicity		Division2	
Specific target organs, General toxicity (Single exposure)		Division1(respiratory organs) Division2(peripheral nerves), Division3(irritation of the respiratory tract)	
Specific target organs, General toxicity (Repetition exposure)		Division1(Eyes, respiratory organs: Inhalation, lungs, skeleton, digestive tract) Division2 (respiratory organs)	
Environmental effects	Hazardous of Inhalational respiratory	Out of classification	
	Acute hazardous top the aquatic Environmental	Impossible to classify	
	Chronic hazardous top the aquatic Environmental	Impossible to classify	

Label element

Symbol:



Alert Words:

Danger

Hazards information:

Impediment of eyes and respiratory organs especially by long-term or repetition exposure.

Hazardous, in case of ingestion,(Oral)

Skin irritation

Possibility of allergic skin reaction

Strong eye irritation

Likely to have a bad influence on genital faculty or fetus.

Likely to cause impediment of peripheral nerves or irritation to the respiratory organs.

Impediment of lungs, skeleton and digestive tract by long-term or repetition exposure.

Caution:

[Safety Measure]

Not to inhale dust and fumes.

Not to handle until understand all safety directions.

Not to do eating, drinking and smoking while using.

Avoid exposure by using personal protective equipment and ventilation system.

Wear protective gloves, eyeglasses and face protections.

Wash hands carefully after use.

Not to carry out the dirty work clothes.

[First aid]

Eye contact: Gently rinse the affected eyes with clean water. In case of wearing contact lens, better to remove them. If irritation persists, arrange for transport to nearest medical facility for examination and treatment by a physician.

Skin contact: Flushing with water and soap.

If feel skin irritation or have eruptions, arrange for transport to nearest medical facility for examination and treatment by a physician.

Wash the dirty work clothes in case of reuse.

In case of an exposure or risk of it, arrange for transport to nearest medical facility for examination and treatment by a physician.

Ingestion: Arrange for transport to nearest medical facility for examination and treatment by a physician immediately. Rinse mouth with water.

If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician.

[Storage]

Store in locked place.

[Disposal]

Obey the relevant law as to the disposal of wastes.

3. Chemical composition and data on components

Chemical substance

	[Sb]	[Te]
Chemical composition:	Sb	Te
Other name:	No information	No information
Element:	Sb (Antimony)	Te (Tellurium)
Chemical distinction (Chemical formula or structure formula):	No information	No information
CAS No:	7440-36-0	13494-80-9
Reference Number in Gazetted List in Japan:	Not applicable	Not applicable
Contamination and stable additive contribute classification:	No information	No information
Concentration or concentration range:	No information	No information

	[Ag]	[In]
Chemical composition:	Ag	In
Other name:	No information	No information
Element:	Ag(Silver)	In(Indium)
Chemical distinction (Chemical formula or structure formula):	No information	No information
CAS No:	7440-22-4	7440-74-6
Reference Number in Gazetted List in Japan:	Not applicable	Not applicable
Contamination and stable additive contribute classification:	No data	No information
Concentration or concentration range:	No information	No information

4. First-aid measures

Inhalation:	<p>Move sufferers to place filled with fresh air, and let repose with posture easy to breath.</p> <p>If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician.</p>
Skin contact:	<p>Flushing with water and soap immediately.</p> <p>If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician.</p> <p>Take off the dirty work clothes.</p> <p>Wash the dirty work clothes in case of reuse.</p> <p>If feel skin irritation or have eruptions, arrange for transport to nearest medical facility for examination and treatment by a physician.</p>
Eye contact:	<p>Gently rinse the affected eyes with clean water. In case of wearing contact lens, better to remove them.</p> <p>If irritation persists, arrange for transport to nearest medical facility for examination and treatment by a physician.</p> <p>If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician.</p>
Ingestion:	<p>Rinse mouth with water immediately.</p> <p>Contact a physician immediately.</p> <p>If having indisposition, arrange for transport to nearest medical facility for examination and treatment by a physician.</p>
Expected acute symptom or in behind:	<p>Inhalation: Cough, vomit, lethargy, dryness of mouth, metallic taste, headache, smell of garlic, nausea, pant, pharyngeal pain.</p> <p>Eye: Redness, pain.</p> <p>Skin: Dryness of skin.</p> <p>Ingestion: Stomachache, sultriness, diarrhea, constipation, nausea, vomit and death.</p> <p>Influence of long-term or repetition exposure: Possible to give arise discoloration(Silver stain; Silver intoxication) of eyes,nose,throat and skin.</p>
Most important indications or symptom:	No information
Special caution for physician:	Medical progress observation is essential.

5. Fire-fighting measures

Extinguish media:	<p>Dry sand, graphite powder, G-1(R) or Met-L-X powder (extinguish media :sodium chloride base), dry chemical, powdery extinguish media, dirt.</p> <p>Use appropriate extinguish media according to each case of fire.</p>
Forbidden extinguish media:	Water, foamy extinguish media, CO2
Special hazards:	<p>Likely to occur irritate or toxic gas by fire.</p> <p>Likely to cause ignition by friction, heat, spark and flame.</p> <p>Likely to ignite immediately by flare combustion effect.</p> <p>Likely to cause explosions and to burn violently.</p> <p>After extinction, likely to ignite again.</p>

Special extinguish way:	<p>Move containers from fire area if not in danger.</p> <p>Desirable sealing way and choking extinguish in case of metal fire.</p> <p>If impossible to put out a fire, keep combusting until it burns out with securing the periphery.</p>
Protection for fire-fighters:	<p>After extinction, keep cooling the containers sufficiently with a mass of water.</p> <p>Fire-fighters should wear proper protective and self-contained breathing apparatus with full facepiece operated in positive pressure mode.</p>
6.Accidental release measures	
Caution for the human body, protective and emergency measure:	<p>Not to contact leakages and broken containers without appropriate protective work clothes. Not to walk in them.</p> <p>Isolate all direction with appropriate distance as leakage area immediately.</p> <p>Keep out without authorized personnel.</p> <p>Use proper personal protective equipment as indicated in Section 8 to avoid contacting eyes and skin or inhalation of gas or fume.</p> <p>Stay windward.</p> <p>Leave lowland areas.</p>
Caution for the environment:	<p>Caution not to affect the environment by discharging rivers.</p> <p>Avoid emitting to the environment.</p>
Retrieve, Neutralization:	<p>A trifle: Sweep and retrieve into clean and dry containers using clean electrifiable prevention tools and cover loosely. Afterward dispose it.</p> <p>A mass: Moisten with water and surround securely. Afterward dispose it.</p>
Containment and cleaning way :	<p>Stop leaking if not in danger.</p>
Prevention of secondary disaster:	<p>Remove All ignition source immediately. (Smoking nearby, spark and flame is prohibited.)</p> <p>Dispose frequently. Likely to slide if remaining on the floor .</p>
7.Handling and storage	
Handling:	
Technical measure:	<p>Do appropriate engineering controls and use proper personal protective equipment as indicated in Section 8.</p>
Ventilation:	<p>Do appropriate ventilation as indicated in Section 8.</p>
Caution for safety handling:	<p>Not to contact, inhale and swallow.</p> <p>Use adequate ventilation(exhaust) to keep airborne concentrations under the limit of exposure.</p> <p>Wash hands carefully after use.</p> <p>Not to handle until understand all safety directions.</p> <p>Not to get in eyes.</p> <p>Not to inhale dust and fumes.</p> <p>Not to do eating, drinking and smoking while using.</p> <p>Use outside or well ventilated area only.</p> <p>Not to use high temperature objects, spark and fire in surroundings.</p>
Avoidance of contact:	<p>Refer to Section 10.</p>
Storage:	
Technical measure:	<p>Set up facilities equipped with adequate lighting and ventilation to store and handle dangerous objects in storage place.</p> <p>Storage place should be fire-resistant structure(wall, pillars, floor) and beams should be made of incombustible materials.</p> <p>The roof of storage place should be made of incombustible materials and roofed over with metal plate or other light incombustible materials besides not to set up the ceiling.</p> <p>Make the floor of storage place water impenetrable structure.</p>
Hazardous Polymerization:	<p>Refer to Section 10.</p>
Conditions to storage:	<p>Store separate from oxidizing agents.</p> <p>Store in locked place.</p> <p>Keep in closed package and store in cool location with good ventilation.</p> <p>Store separate from ignition source like heat, spark, bare fire. No smoking.</p>
Materials of containers or package:	<p>Use containers provided UN transportation laws and regulations.</p>

8.Exposure control and personal protection

Control concentration: Not set.

Allowance concentration(Exposure limit, Biological exposure indicator) :

ACGIH (2005ver.)	TLV-TWA	In: 0.1mg/m ³
	TLV-TWA	Ag: 0.1mg/m ³
	TLV-TWA	Sb: 0.5mg/m ³
	TLV-TWA	Te: 0.1mg/m ³

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations under the limit of exposure.

In case of occurring dust or fume in high temperature process, set up ventilation device to keep air pollutive substances under control concentration.

Use electricity,ventilation,lighting prevented from explosion.

Personal Protective Equipment:

Respiratory organs: Use appropriate protections for respirators.

Hands: Wear appropriate protective gloves.

Eyes: Wear appropriate protective eyeglasses(standard glasses type, standard glasses with side board type, goggles type) and face protections.

Skin and Body: Wear appropriate protective clothing and face protections.

Sanitary measure: Wash hands carefully after use.

Not to do eating, drinking and smoking while using.

9.Physical and chemical properties

	[Sb]	[Te]
Appearance, physical state,form,color:	Silver to white, shiny and brittle metal, or dark gray powder.	Uncrystallized powder having metallic character colored dark gray to brown or silvery white and shiny crystalized solid.
Odor:	No data	Odorless
pH:	No data	No data
Melting point, Coagulating point:	630°C(Melting point)	449.5°C
Boiling point, Initial boiling point and Boiling range:	1635°C(Boiling point)	989.8°C(Boiling point)
Flash point:	No data	No data
Explosion range:	No data	No data
Steam pressure:	133 Pa(886°C)	0.133kPa (793K ; 520°C)
Steam density(Air=1):	No data	No data
Specific Gravity:	6.7	6.0-6.25g/cm ³
Solubility:	Insoluble (water) No data (organic solvent)	Insoluble Insoluble(benzene, CO2)
Octanol/Water Partition Coefficient:	No data	No data
Spontaneous combustion temperature:	No data	340°C
Decomposition temperature:	No data	No data
Threshold of odor:	No data	No data
Evaporation speed(Butyl acetate= 1):	No data	No data
Combustion property(Solid, Gas):	No data	No data
Viscosity:	No data	No data

	[Ag]	[In]
Appearance, physical state, form, color:	White, Metal.	Various formed blue white tinge or silvery grayish solid
Odor:	Odorless	No data
pH:	No data	No data
Melting point, Coagulating point:	962°C(Melting Point)	327.4°C(Melting point)
Boiling point, Initial boiling point and Boiling range:	2212°C(Boiling Point)	1740°C(Boiling point)
Flash point:	No data	Not applicable
Explosion range:	No data	Not applicable
Steam pressure:	0.000000565Pa(25°C){conversion value}	235Pa(1000°C)
Steam density(Air=1):	No data	No data
Specific Gravity:	10.5	No data
Solubility:	Insoluble(water) No data	Soluble slightly. (Cold water)
Octanol/Water Partition Coefficient:	No data	log Pow = 2.98 (EST)
Spontaneous combustion temperature:	No data	No data
Decomposition temperature:	No data	No data
Threshold of odor:	No data	No data
Evaporation speed(Butyl acetate= 1):	No data	Not applicable
Combustion property(Solid, Gas):	No data	Not applicable
Viscosity:	No data	No data

10. Stability and reactivity

[Ag]

Chemical Stability:	Stable under normal storage and handling conditions.
Incompatibilities with Other Materials:	Darken with exposure to ozone, hydrogen sulfide or sulfur. Impossible to contact strong acids and strong bases. Form compounds sensitive to shock by acetylene. Fine fragment of silver and hydrogen peroxide solution in water is likely to explode. (Emit oxygen gas by decomposing heavily). If contact ammonia when drying, likely to generate explosive compounds. React easily with dilute nitric acid or sulfuric acid. Cause of fire.
Conditions to Avoid:	Nothing special.
Hazardous Polymerization:	strong acids, strong bases, hydrogen peroxide solution in water, Ammonia(when drying), dilute nitric acid, sulfuric acid.
Hazardous Decomposition Products:	Not applicable

[Sb]

Chemical Stability:	Ignite by surface at high temperature, spark or bare fire.
Incompatibilities with Other Materials:	In case of contacting or mixing with chlorine, occurring violent reactions with a blaze and generate toxic antimony chloride(V). In case of contacting with sulfuric acid of high temperature, react and occur toxic and corrosive sulfur dioxide(gas). In case of contacting or mixing with various metal powder, likely to cause risk of explosion. React violently with oxidizing agents(halogen, alkali permanganate, nitrate etc.) or metal powder and cause risk of fire and explosions. In case of contacting with acid, likely to generate toxic gas(Stibine).
Conditions to Avoid:	High temperature. Generation of dust.
Hazardous Polymerization:	Chlorine, nitric acid of high temperature, metal powder, oxidizing agents(halogen, alkali permanganate, nitrate etc.)
Hazardous Decomposition Products:	Not applicable(element) In case of combustion, generate toxic fumes(antimony oxide).

[Te]

Chemical Stability:	Particles scatter finely in the air and generate explosive mixed gas.
Incompatibilities with Other Materials:	React violently with halogen or interhalogen compounds and cause risk of fire and explosions. React with zinc white-hotly.
Conditions to Avoid:	In case of heating, occur toxic fumes.
Hazardous Polymerization:	Lithium silicide erode Tellurium white-hotly. Caution against contacting with halogen and interhalogen compounds.
Hazardous Decomposition Products:	In case of combustion, likely to generate toxic fumes.

[In]

Chemical Stability:	Stable under normal handling conditions.
Incompatibilities with Other Materials:	React with strong acids, strong oxidizing agents, sulfur and cause risk of fire and explosions.
Conditions to Avoid:	Accumulating and diffusion of dust.
Hazardous Polymerization:	Strong acids, strong oxidizing agents.
Hazardous Decomposition Products:	In case of combustion, likely to emit toxic fumes or gas.

11. Toxicological information

[Ag]

Acute toxicity:	Oral	Rat	LD ₅₀	>5000mg/kg
	Dermal	Rat	LD ₅₀	>2000mg/kg
	Inhalation(Dust)	No information		
Skin corrosive, Irritation	Mentioned Slightly irritating by experiments on rabbits.			
Heavy injuries to eyes-Irritation	Mentioned slightly irritation and recover in 48hours by experiments on rabbits. Eye irritation(Division2B)			
Sensitization of respiratory organs or skin:	Sensitization of respiratory organs: No data. Sensitization of skin: Mentioned exposure of powder cause allergic contact dermatitis and contacting accessories contained silver cause allergic dermatic Likely to occur allergic skin reaction.(Division1)			
Variation of germ cell:	No data			
Carcinogenicity:	No information by classification estimative institution of IARCetc..Not recognized by experiments on rats of intramuscular injection with powder and no evidence of carcinogenicity for humans.			
Genital toxicity:	No information			
Specific target organs, General toxicity:	Developed pulmonary impediment with water on the pulmonary by 4hours' exposure to heated metal silver steam.			
(Single exposure):	Cause irritation to the respiratory tract by career exposure of dust. Impediment of respiratory organs(Division1)			
Specific target organs, General toxicity:	Occur argyria(pigmentary stain to skin or mucous membrane) by career exposure of dust. However mentioned decline of night eyesight is recognized as functional			
(Repetition exposure):	Mentioned developed bronchitis from stain to lungs by long-term inhalation of dust,therefore,set Division1(respiratory organs: inhalation). Impediment of eyes and respiratory organs(Inhalation) by long- term or repetition exposure(Division1)			
Hazardous of Inhalational respiratory organs:	No data			

[Sb]

Acute toxicity:	Oral	Rat	LD ₅₀	7000mg/kg
	Impossible to classify: Possible to be "Out of division", however, this is a data of Priority 2.			
	Dermal: No data			
	Inhalation(dust) : No data			
Skin corrosive, Irritation:	Impossible to classify: Possible to have skin irritation based on the mention of "Have irritation to skin", however, this is a data of Priority 2.			
Heavy injuries to eyes • Irritation:	Impossible to classify: Possible to have eye irritation based on the mention of "Have irritation to eyes", however, this is a data of Priority 2.			
Sensitization of respiratory organs or skin:	No data			
Variation of germ cell:	No data			
Carcinogenicity:	Impossible to classify: Based on the decision of experts. (No information of toxicity and the existent classification.)			
Genital toxicity:	Impossible to classify because of insufficient data.			
Specific target organs, General toxicity:	No data			
(Single exposure):				
Specific target organs, General toxicity:	Division2(respiratory prgans)			
(Repetition exposure):				
	Likely to cause impediment of respiratory organs by long- term or repetition exposure.			
Hazardous of Inhalational respiratory organs:	No data			
[Te]				
Acute toxicity:	Oral	Rat	LD ₅₀	83mg/kg
	In case of ingesting, can be hazardous (Division3)			
	Dermal: No data			
	Inhalation(dust)	Rat	LC ₅₀	> 2.42mg/L/4H
	Impossible to classify because of insufficient data.			
Skin corrosive, Irritation:	Division2 (Skin irritation)			
Heavy injuries to eyes • Irritation:	Division2A-2B (Heavy irritation of eyes)			
Sensitization of respiratory organs or skin:	No data			
Variation of germ cell:	No data			
Carcinogenicity:	No data			
Genital toxicity:	Division2			
	Likely to have a bad influence on genital faculty or fetus. (Division2)			
Specific target organs, General toxicity:	Division2(peripheral nerves), Division3(irritation of the respiratory tract)			
(Single exposure):				
	Likely to cause impediment of peripheral nerves.(Division2)			
	Likely to cause impediment of to the respiratory organs.			
Specific target organs, General toxicity:	Impossible to classify			
(Repetition exposure):				
Hazardous of Inhalational respiratory organs:	No data			

[In]				
Acute toxicity:	Oral	Rat	LD ₅₀	4200mg/kg Division5
				In case of ingesting, can be hazardous (Division5)
				Dermal: No information
				Inhalation: No information
Skin corrosive, Irritation:				No information
Heavy injuries to eyes-Irritation:				No information
Sensitization of respiratory organs or skin:				No information
Variation of germ cell:				No data
Carcinogenicity:				No data
Genital toxicity:				No information
Specific target organs, General toxicity:				No information
(Single exposure):				
Specific target organs, General toxicity:				Mentioned: "Indium and the compounds are set TLV-TWA by effects on skeleton and digestive tract and especially toxicity caused by inhalation into lungs", "Reports of 2cases of pulmonary fibrous disease by indium tin oxides are exist.", "Indium is probably the primary cause of the pulmonary toxicity because indium tin oxides are high in indium (indium74%, tin8%)"
(Repetition exposure):				Division1 (lungs, skeleton, digestive tract) Impediment of lungs, skeleton and digestive tract by long- term or repetition exposure. (Division1)
Hazardous of Inhalational respiratory organs:				No data

12. Ecological information

**Acute hazardous to the aquatic
Environmental:** Impossible to classify because of insufficient data.

**Chronic hazardous to the aquatic
Environmental:** Impossible to classify because of insufficient data.

13. Disposal considerations

The rest of waste: Obey the relevant law as to the disposal of wastes.
Dispose by manufacturers in case of returning backing plate etc. to reuse.

14. Transport information

IMAG(P.4157)Class None Known.

ICAO/IATA:Class None Known.

UN/NA None Known.

15. Regulations

US federal regulations No information

TSCA is not required.

International regulations No information

Canadian Domestic No information

Substance list: None known.

Information about limitation of use: For use only by technically qualified individuals.

16. Other information

The information is revised by the new knowledge. Although the information herein is based on the best of our knowledge, we cannot guarantee the accuracy or completeness of the information contained.

SAFETY DATA SHEET

SDS Rev. 1 No.2621213300EN

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**1.1 Identification of the substance or preparation**

- **PRODUCT NAME:** DAICURE CLEAR SD-3300

1.2 Company/undertaking identification

- **COMPANY:** DAINIPPON INK & CHEMICALS, INC
- **ADDRESS:** 7-20, NIHONBASHI 3-CHOME, CHUO-KU, TOKYO JAPAN
- **TELEPHONE:** +81-3-5203-7633
- **FAX-No.:** +81-3-3272-2110
- **DEPARTMENT FOR INFORMATION:** IMAGING & REPROGRAPHIC PRODUCTS DIV.
SALES DEPARTMENT No. 3

1.3 EMERGENCY CONTACT NUMBER:

- **U.S.A.:**
DIC International(USA), LLC.
1) Glenpointe Centre West, TEL:+1-201-836-4097 FAX:+1-201-836-4962
500 Frank W. Burr Boulevard, Teaneck, NJ 07666
2) 2151 Michelson Dr., Suite 255, Irvine, CA 92612 TEL:+1-949-660-8592 FAX:+1-949-660-1762
DIC Imaging Products U.S.A., LLC. TEL:+1-414-764-5100 FAX:+1-414-764-5032
7300 South 10th Street, Oak Creek, Wisconsin 53154, U.S.A
- **Europe: DIC EUROPE GmbH** TEL:+49-211-16430 FAX:+49-211-164388
Immermannstrasse 65D, D-40210 Düsseldorf, Germany
- **Taiwan: DIC (Taiwan) Ltd.** TEL:+886-2-2551-8620 FAX:+886-2-2562-9240
8th FL, Chang An Building, No. 18, Chang An East Road, Sec.1, Taipei, Taiwan, Republic of China
- **Japan:DAINIPPONINK&CHEMICALS,INC.** TEL.:+81-3-5203-7633 FAX:+81-3-3272-2110
7-20, Nihonbashi 3-Chome, Chuo-ku, Tokyo Japan

2 COMPOSITION/INFORMATION ON INGREDIENTS

- **SUBSTANCE/PREPARATION:PREPARATION**

UV curable acrylic resin

The product contains acrylates over 10%

- **Characterization of ingredients**

Chemical	Concentration (wt %)	CAS No.	OSHA exposure limit
a) acrylates	85 - 95	trade secret	no reportable limit
b) photoinitiators	1 - 15	trade secret	no reportable limit
c)			

3. HAZARD IDENTIFICATION

Toxic in contact with skin. Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

- **General Instructions:** There are no general instructions necessary.
- **Eye Contact:** After separating the eyelids, flush with copious amounts of water. Contact an oculist.
- **Skin Contact:** Remove contaminated clothing, take a shower, and thoroughly wash affected skin with soap and plenty of water.
- **Ingestion:** Guide affected person to a physician
- **Inhalation:** Remove affected person from dangerous area. Contact a physician in case inconvenience persists.
- **Note to Physician:** There are no special instructions. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:** Dry chemical powder, form and carbon dioxide, water spray.
- **Fire and Explosion Hazard:** Slight fire hazard when exposed to heat or flame. Heating results in increase of pressure at closed drums. Danger of rupture.
- **Special Exposure Hazards arising from substance or combination products:**
Thermal decomposition products may include toxic oxides of carbon.
- **Special Protective equipment required for fire fighting:**
Cool product containers exposed to fire with water spray. In case of fire, wear a self-containing breathing apparatus and full protective clothing. Collect contaminated water in spillage containers if any possible and take care for disposal.

6. ACCIDENTAL RELEASE MEASURES

Lock all drains. Wear protective equipment (see chapter 8.3). Exhaust product vapors. Remove sources of ignition. Dike leakage with inert material. Cover liquid with an inert adsorbent, take up into marked containers and hold for waste disposal as described in chapter 13. Carefully rinse affected ground. Avoid any contact of the product with incompatible substances that might result in polymerization.

7. STORAGE AND HANDLING

7.1 Handling:

Handle product only in well ventilated areas. Only use tools and equipment resistant to organic solvents. Check durability and applicability of tools and equipment prior to use. Exhaust released product vapors directly at origin of formation. Provide eye bath at working place.

7.2 Storage:

Store product in tightly closed original containers in a dry and cool (preferably at temperature below 25 °C) place protected from sunlight and fluorescent light. Install spillage containers. Avoid spills and splashes during refilling processes. Observe all regulations when storing.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 Technical facility design:

Install an efficient exhaustion system when treating the product.

8.2 Components with exposure limits:

This product does not contain any components with exposure limits, which are listed on 29 CFR Part 1910, Subpart Z.

8.3 Personal hygiene and protective equipment

Follow the general guidelines of good industrial hygiene. Avoid any direct contact with the product. Never breathe product vapors. Immediately change contaminated clothing and clean before reuse.

- **Respiratory*:** Chemical cartridge respirator with an organic vapor cartridge or Self-contained breathing apparatus.
- **Eye Protection:** Chemical safety goggles.
- **Hand Protection:** Impermeable gloves.
- **Skin Protection:** Long sleeve clothing, resistant to solvents.

Respiratory*: In normal use, not required. In emergency situation, or when used in confined spaces, recommend to use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: liquid (25 °C)

Color: pale yellow

Odor: mild

9.1 Change in physical state	no data
9.2 Density	1.09g/cm ³ (25 °C)
Bulk density	not applicable
9.3 Vapor pressure	no data
9.4 Viscosity	63mPa·s(25°C)
9.5 Water Solubility	negligible (25°C)
Fat Solubility	miscible in commonly used organic solvents
9.6 pH-Value	not applicable
9.7 Flashpoint	168°C(Cleveland open cup)
9.8 Auto flammability	not determined
9.9 Explosion limits	no data
9.10 Partition Coefficient n-Octane/Water log P _{ow} :	no data

10. STABILITY AND REACTIVITY

- **Conditions to avoid:** heat, sunlight (may result in polymerization)
- **Materials to avoid:** oxidizing agents, strong bases, and transition metals (possible polymerization).
- **Hazardous decomposition product:** not applicable

11. TOXICOLOGICAL INFORMATION

The product may cause a moderate irritation to the eyes, followed by burning sensation, tearing, redness or swelling. Skin contact may result in delayed irritation and blistering.

Primary Irritation Index : 0.7

LD(50)oral/rat: no data

12. ECOLOGICAL INFORMATION

No data is available about the ecotoxicological potential of the product.

Never release product into the environment. Decant and purify polluted wastewater before its release into the drains.

13. DISPOSAL CONSIDERATIONS

Preferably recover product according to official local directions, e.g. recycling, or burn the product in a chemical incinerator equipped with an afterburner and a scrubber. Empty used containers completely, rinse with a solvent and dispose excluding unauthorized possible reuse.

14. TRANSPORT REGULATIONS

Follow all regulations in your country.

UN-No:	not restricted	UN-Class:	not restricted
Packing group:	not restricted	IMDG-CODE:	not restricted
ICAO/IATA:	not restricted	MARINE-POL.:	not restricted

15. REGULATORY INFORMATION

TSCA inventory status: All of the ingredients are registered with TSCA inventory.

NPFA rating (scale 0 – 4): Health 2; Flammability 1; Reactivity 1

HMIS rating (scale 0 – 4): Health 2; Flammability 1; Reactivity 1

Hazard symbols: Irritant

Risk-Phrases: Irritating to eyes, respiratory system and skin.
May cause sensitization by skin contact.

Safety-Phrases: Avoid contact with skin.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
After contact with skin, wash immediately with plenty of water.
Wear suitable gloves.

16. OTHER INFORMATION

Revised on 7/15/2005, change Sec.2 and Sec.15 format



SAFETY DATA SHEET Asia Pacific GHS Format

Print date: 05-Jan-2016

Revision Number: 1

Revision date: 05-Jan-2016

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trademark:	SABIC® PC
Product Code:	PC5800 - GC9AN
Product Description:	Bisphenol-A-polycarbonate [CASRN 25929-04-8]
Product Type:	Commercial Product
Recommended use:	May be used to produce molded or extruded articles or as a component of other industrial products.
Company:	<ul style="list-style-type: none">-SABIC Japan LLC. Tokyo Club Building, 2-6 3Chome Kasumigaseki, Chiyoda-Ku Tokyo, 100-0013 Japan-SABIC Innovative Plastics (China) Ltd.or SABIC Innovative Plastics International Trading Shanghai Ltd. 2550 Xiupu Road, Pudong New Area, Shanghai 201319, China (Contact address)-SABIC Korea Ltd. 20F, Donghooon Building, 317, Teheran-ro, Seoul, Korea-SABIC Innovative Plastics Singapore Pte Ltd 23, Benoi Road, 629895 Singapore-SABIC Innovative Plastics (Thailand) Co. Ltd 64/22 Moo 4 Tumbol Pluak Daeng, Amphur Pluak Daeng,Rayong 21140 Thailand-SABIC Innovative Plastics India Ltd. Plastics Avenue, P.O. Jawaharnagar,District Vadodara 391320 India-SABIC Taiwan Holding Ltd, Taiwan Branch, Room B,7F,No. 8,Min-Sheng E. Rd. Sec. 3,Taipei City 10480 Taiwan-SABIC Innovative Plastics Hong Kong Limited. Flat/ RM 1701, Tower 1, the Gateway 25 Canton Road, Tsimshatsui, Hong Kong-SABIC Innovative Plastics (Aust.) Pty. Ltd. Suite 14, Building 3, 195 Wellington Road, Clayton, Victoria, Australia 3168
Manufacturer:	SABIC P.O. Box 5101 Riyadh 11422 Saudi Arabia
Emergency Telephone Number:	Japan: +(81)-3-3593-4735 China: +86 532 83889090, +86 20 84980148 Korea: +(82)-2-510-6546 Singapore: +(65)-6210 4199 Thailand: +(66)-22312323-4 ext. 46, +(66)-38927000 ext. 7026 India: +(91)-265 3068554 Australia: +61 (0)3 9566 3000
Emergency Transportation/CHEMTREC (24 HOUR):	800 424-9300 (USA) +1 703-527-3887 (globally, outside USA)
E-mail:	Asiaproductinquiries@sabic.com
Website Address:	www.sabic.com

2. HAZARDS IDENTIFICATION

The additives in this product (if any) are bound in a thermoplastic resin matrix. In accordance with GHS for the classification of the product, the hazard potential may be assessed with respect to the physico-chemical form and/or bioavailability of the individual components in the thermoplastic resin.

Where GHS classifications are shown below, these are based on the individual components in the thermoplastic resin matrix. Under the typical use conditions for the resin, these hazardous components are unlikely to contribute to workplace exposure. Please read the entire safety data sheet and/or consult an EHS professional for a complete understanding.

Globally Harmonized System, UN(GHS) - Classification

GHS Category

Not hazardous Not classified

GHS-Labeling

GHS Labeling not required

Precautionary Statements

No GHS specific Precautionary Statements required - observe all other warnings and handling instructions in this SDS.

Other hazards which do not result in classification:

SABIC Emergency Overview

- Pellets with slight or no odor
- Spilled material may create slipping hazard
- Can burn in a fire creating dense, toxic smoke
- Molten plastic can cause severe thermal burns
- Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever. See below for additional effects.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

Other Information: Cool skin rapidly with cold water after contact with molten material. Heating can release hazardous gases. Hazardous fumes can also occur in post-processing operations.

Processing Issues: Processing vapors may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing vapor condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

Aggravated Medical Conditions: MEDICAL RESTRICTIONS: There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Product Type Mixture

For the full text of the H-statements, if mentioned in this section, see Section 16.

The non-hazardous components and exact percentage (concentration) of the composition have been withheld as a trade secret.

This product consists primarily of high molecular weight polymers which are not expected to be hazardous. The ingredients in this product are present within the polymer matrix and are not expected to be hazardous.

4. FIRST AID MEASURES

- If Inhalation:** Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If symptoms persist, call a physician.
- On skin contact:** Immediately cool the skin by rinsing with cold water after contact with hot material. Wash off immediately with soap and plenty of water. Consult a physician.
- On contact with eyes:** Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, consult a specialist.
- On ingestion:** No hazards which require special first aid measures.
- Precautions:** Processing vapors inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

5. FIRE-FIGHTING MEASURES

Autoignition Temperature: 630°C (1166°F) estimated

Explosive Limits

upper:	Not determined
lower:	Not determined

Suitable Extinguishing Media: Use dry chemical, CO₂, water spray or "alcohol" foam. Water is the best extinguishing medium. Carbon dioxide and dry chemical are not generally recommended because their lack of cooling capacity may permit re-ignition on larger resin fires (blobs, drools, etc.).

Unsuitable Extinguishing Media for Safety Reasons: Do not use a solid water stream as it may scatter and spread fire.

Hazards from Combustion Products: Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

Specific Hazards: Take precautionary measures against static discharges. During processing, dust may form explosive mixture in air. Thermal decomposition can lead to release of irritating gases and vapors.

Special Protective Equipment for Firefighters: In the event of fire, wear self-contained breathing apparatus (EU: NEN-EN137).

Exposure hazards: Do not release chemically contaminated water into drains, soil or surface water. Sufficient measures must be taken to retain the water used for extinguishing. Dispose of contaminated water and soil according to local regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: See section 8.

Environmental Precautions: Do not flush into surface water or sanitary sewer system. Material should not be released into the environment.

Clean up: Sweep up and shovel into suitable containers for disposal. Do not create a powder cloud by using a brush or compressed air.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practices Provide for appropriate exhaust ventilation and dust collection at machinery Avoid dust formation All metal parts of the mixing and processing equipment must be earthed

Storage: Store in closed container in a dry and cool area. Keep away from heat sources and sources of ignition. Keep away from food, drink and animal feeding stuffs. Keep container tightly closed in a dry and well-ventilated place.

Incompatible Products: Strong acids, strong oxidizing agents.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No components with information, unless noted below

**SABIC Recommended Exposure Limits have been established for certain chemicals.*

Engineering Measures to Reduce Exposure: Handle in accordance with good industrial hygiene and safety practices. Provide for appropriate exhaust ventilation at machinery. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.

Hand Protection: Protective gloves should be worn

Eye Protection: Safety glasses with side-shields or chemical goggles. In addition, use full-face shield when cleaning processing vapor condensates from hood, ducts, and other surfaces.

Respiratory Protection: When using this product at elevated temperatures, implement engineering systems, administrative controls or a respiratory protection program (including a respirator approved for protection from organic vapors, acid, gases, and particulate matter) if processing vapors are not adequately controlled or operators experience symptoms of overexposure. If dust or powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.

Body Protection: Long sleeved clothing

Hygiene Measures: When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Appearance: Pellets
Color: Same as color code
Odor: None or slight

Melting point/range: This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.

Autoignition Temperature: 630°C (1166°F) estimated

Vapor Pressure: Negligible

Water Solubility: Insoluble

Evaporation Rate: Negligible

Explosive Limits
upper: Not determined
lower: Not determined

Specific gravity: >1; (water = 1)
VOC content (%): Negligible

10. STABILITY AND REACTIVITY

Reactivity:	Not reactive under recommended conditions of handling, storage, processing and use. No information available.
Stability:	Stable under ambient conditions. Hazardous polymerization does not occur.
Conditions to Avoid:	Avoid temperatures above 630°C. To avoid thermal decomposition, avoid elevated temperatures. Heating can result in the formation of gaseous decomposition products, some of which may be hazardous. Do not exceed melt temperature recommendations in product literature. Purgings of hot material should be collected in small, flat, thin shapes and quenched with water to allow for rapid cooling. Do not allow product to remain in barrel at elevated temperatures for extended periods of time.
Materials to Avoid:	May react with strong oxidizing agents, strong acids or other highly reactive chemicals
Hazardous Decomposition Products:	Process vapors under recommended processing conditions may include trace levels of hydrocarbons, phenols, alkylphenols, diarylcarbonates.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information:

LD50/oral/rat: >5000 mg/kg
 LD50/dermal/rabbit: >2000 mg/kg

Component Information:

Component Information Text: No data available

Sensitization

Respiratory Sensitization: Not classified

Irritation:

Eye Irritation: no data available

Primary Irritation: Substance does not generally irritate and is only mildly irritating to the skin

Subchronic Toxicity (28 days)

Repeated Oral Toxicity(28d): No information available

Repeated Dermal Toxicity(28d): No Information available

Subchronic Toxicity: No information available

Chronic Toxicity

Carcinogenicity: There are no known carcinogenic chemicals in this product above de minimus reporting levels, except as specifically mentioned below.

Mutagenic Effects: No data is available on the product itself

Reproductive Toxicity: No information available

Developmental Toxicity: No information available.

Neurological effects: No information available.

Specific Target Organ

Toxicity(STOT)

Target Organ Effects: Not established.

Aspiration Hazard

Aspiration Hazard Statement: No data available

Other relevant toxicity information

IARC: Not listed

OSHA: Not regulated

NTP: Not tested

Remarks: The toxicological data has been taken from products of similar composition.

Special Studies: No Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component Information:

Product Information:

Persistence and Degradability

Biodegradation: Not inherently biodegradable

Partition coefficient (n-octanol/water) Not established.

Bioaccumulative Potential:
Bioaccumulation: Not established.

Mobility
Mobility: May be separated mechanically in waste water plants.

Other Adverse Effects
Ecotoxicity Effects: Do not flush into surface water or sanitary sewer system.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Where possible recycling is preferred to disposal or incineration. Descartar em conformidade com as legislação locais.

Contaminated Packaging: Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal.

Waste Disposal: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

14. TRANSPORT INFORMATION

Transport Classification: Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.

IMO / IMDG Not regulated

ICAO Not regulated

IATA-DGR Not regulated

DOT Not regulated

ADR/RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories:

TSCA (USA):	Listed
DSL (Canada):	Listed
EINECS/ELINCS (Europe):	Listed
ENCS (Japan):	Listed
IECSC (China):	Listed
KECL (Korea):	Listed
PICCS (Philippines):	Listed
AICS (Australia):	Listed
NZIoC (New Zealand):	Listed

Other Inventory Information:

A "Listed" entry above means all chemical components are on the respective inventory list and/or a qualifying exemption exists for one or more components. A "Not listed" entry above indicates one or more components is restricted from import or manufacture into that country/region. Articles are exempt from registration and are therefore not listed on the national chemical inventories.

SVHC (REACH Regulation (EC) No 1907/2006 and 453/2010, as amended):

This product does not intentionally contain SVHC chemicals except as noted below. Incidental amounts of impurities, if present, would be below the threshold limit of 0.1% by weight.

SARA (313) Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA):

This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA (311, 312) hazard class:

Acute Health Hazard	N
Chronic Health Hazard	N
Fire Hazard	N
Sudden Release of Pressure Hazard	N
Reactive Hazard	N

Canada:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR. Unless noted below, this product is non-controlled. Some classifications may not apply to the entire product.

California Proposition 65:

This product does not contain components known to the State of California to cause cancer and/or reproductive effects.

RoHS EU Directive 2011/65/EU:

The subject product is in compliance with EU RoHS Directive 2011/65/EU. All below chemicals are not employed in the manufacture of the product: a.Cadmium and its compounds, b.Lead and its compounds, c.Mercury and its compounds, d.Hexavalent chromium compounds, e.Polybrominated biphenyls (PBBs), f.Polybrominated diphenyl ethers (PBDEs including Deca-BDE). The trace levels of heavy metals may be present as impurities within threshold limits (<0.1% for Pb, Hg, Cr VI, and <0.01% for Cd). We are disclosing this information, to the best of our knowledge, based upon data from our raw material manufacturers.

Remarks:

This product consists primarily of high molecular weight polymers which are not expected to be hazardous. The ingredients in this product are present within the polymer matrix and are not expected to be hazardous.

HMIS Rating

Health: 0

Flammability: 1



Reactivity: 0

16. OTHER INFORMATION

SABIC and brands marked with ™ are trademarks of SABIC or its subsidiaries or affiliates.

www.sabic.com

<http://eur.sabic-ip.com/ordeur/pages/msds/MSDSSearch.jsp?app=sabic-ip>

SDS Scope:

Singapore: Conforms to Singapore workplace Safety and Health (WSH) Act, WSH Regulations, and GHS Standard 586
China: Conforms to Chinese Regulation on the Control over Safety of Hazardous Chemicals (Decree No 591) and GHS standards GB15258,GB13698,GB/T16483 etc.

Japan: Conforms to Industrial Safety and Health Law (2006) and GHS related Standards JIS Z7253:2012

Korea: Conforms to Industrial Safety & Health Act, Ministry of Labor, Korea

Taiwan: Conforms to Taiwan Rules on Hazard Communication and Labeling of Hazardous Substances, (Council of Labor Affairs, Taiwan) and GHS standards Z1051

Thailand: Conforms to Notification of the Ministry of Industry on the System of Classification and Hazard Communication of Hazardous Substances B.E. 2555 (2012)

Australia: National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC:2011 (2003)]

This document is also applicable in other countries and regions.

Prepared by: Product Stewardship & Toxicology

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End of Safety Data Sheet