

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。

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PANCURE-1570-20H

1. IDENTIFICATION

Product Names PANCURE-1570-20H
Recommended use DVD Bonding Adhesives
Manufacturer details PANCOLOUR INK CO., LTD.
No.12, Wenming 3rd st., Gueishan Shiang, Taoyuan, Taiwan
Tel: +886-3-3270177 ; Fax: +886-3-3270180
Emergency phone number Tel: +886-3-3270177

2. HAZARD IDENTIFICATION

Classification: Skin corrosion/irritation (Category 2)
Serious eye damage/eye irritation (Category 2A)
Skin sensitizer (Category 1)

Labeling:

Hazard Symbols:



Signal Word: WARNING

Hazard Statement: Cause skin irritation; Causes serious eye irritation; May cause allergic skin reaction

Precautionary Statements:

Prevention

Wear protective gloves, Wash thoroughly after handling.
Wear eye/face protection

Response

IF ON SKIN: Wash with plenty of soap and water. Take of contaminated clothing and wash before re-use. If skin irritation occurs, seek medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention. Wash hands after handling.

Disposal

Dispose of contents/container in accordance with local and national regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Hazard Components	% by weight	CAS No.
Acrylated Oligomers	30~58%	—
Acrylated Monomers	10~40%	13048-33-4 / 42978-66-5 /
Photoinitiators	5~14 %	947-19-3 / 7473-98-5

4. FIRST AID MEASURES

Inhalation Keep at rest. Move to fresh air. Consult a physician.
Skin contact Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water and seek medical advice

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Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.
Ingestion	Do not induce vomiting. Keep at rest. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Use foam, extinguishing powder, carbon dioxide, water fog. In case of fire, cool endangered containers with water fog.
Extinguishing media which must not be used for safety reason	High pressure water jet
Specific hazards in case of fire	Possible decomposition products are: COx, NOx
Special protective equipment for firefighters	For fires in enclosed areas, wear self-contained breathing apparatus and protective suit. Do not inhale combustion gases.



6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Ensure adequate ventilation. Wear personal protective equipment. Remove all sources of ignition. Avoid contact with skin and eyes. Do not breathe vapors or spray mist.
Environmental precautions:	Do not flush into surface water.
Methods and materials for containment and cleaning up:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Shovel into suitable container for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes. Avoid prolonged repeated skin contact. Use in well-ventilated area away from all ignition sources. Switch off all electrical devices such as parabolic heaters, hotplates, storage heaters etc. in good time for them to have cooled down before commencing work. Do not smoke; do not weld. Do not empty waste into sanitary drains. Take measures to prevent the build up of electrostatic charge.
Conditions for safe storage, including incompatibilities:	Keep tightly closed in a dry, cool and well-ventilated place. (e.g. 25°C) Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions. Keep away from sources of ignition - No smoking.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:	No values have been established.
Appropriate engineering controls:	
Personal protective equipment:	Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.
	Hand protection:  Protective gloves
	Eye protection:  Tightly sealed Goggles
Hygiene measures	Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice.

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PANCURE-1570-20H

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance	Liquid
Color	Clear
odour	Characteristic

Important health, safety and environmental information

pH	Not applicable
Boiling point/boiling range	Not applicable
Melting point/melting range	No data available
Flash point	>110 °C
Evaporation rate	< 1
Vapour density	> 1
Autoignition temperature	No data available
Oxidising properties	Not applicable
Vapour pressure	No data available
Relative density	1.13
Water solubility	Insoluble
Explosion limits	No data available
Partition coefficient (n-octanol/water)	No data available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable at normal conditions
Possibility of hazardous reactions	Under high temperature and exposed to ultraviolet light.
Conditions to avoid	Avoid temperatures above 60°C and exposure to direct sunlight. Keep away from heat, sources of ignition. Avoid contact with acids, oxidizing agents, free radical initiators, sunlight or ultraviolet light, and bases or amines.
Incompatible materials	Peroxides, free radical initiators, strong alkalis, reactive metals
Hazardous decomposition products	COx, NOx, VOCs

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Titanium dioxide : LD50/oral/rat : > 10000 mg/kg Titanium dioxide : LC50/inhalation/4h/rat : > 2,29 mg/l (1-methyl-1,2-ethanediyl)bis([oxy(methyl-2,1-ethanediyl)] diacrylate : LD50/dermal/rabbit : >2000mg/kg (1-methyl-1,2-ethanediyl)bis([oxy(methyl-2,1-ethanediyl)] diacrylate : LD50/oral/rat : 3000 - 8100mg/kg Epoxy Diacrylate : LD50/oral/rat : 5000 mg/kg 2-hydroxy-2-methylpropiophenone : LD50/oral/rat : < 2000 mg/kg
Inhalation	Irritating to respiratory system.
Skin contact	May cause sensitization by skin contact. Repeated contact may cause allergic reactions in very susceptible persons. Irritating to skin.
Eye contact	Irritating to eyes.
Ingestion	Harmful if swallowed.
Chronic toxicity	May cause sensitization by skin contact.

12. ECOLOGICAL INFORMATION

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Toxicity	Not available
Persistence and Degradability	Not available
Bioaccumulation Potential	Not available
Mobility in Soil	Not available

13. DISPOSAL CONSIDERATION

Disposal Methods	Dispose of in accordance with local regulations
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14. TRANSPORT INFORMATION

UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport hazard class(es)	Not applicable
Packing Group	Not applicable
Environmental Hazards	Not marine pollutant
Special Precautions for Users	None

15. REGULATORY INFORMATION

Applicable Regulations	Not available
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16. OTHER INFORMATION

Reference Document	- Understanding the GHS:A Companion Guide to the Purple Book, PAG 13-3,UNITAR - Guide to the classification and labeling of UV/EB Acrylates, 3 edition, 2007, CEFIC
Issued date	2017/01/10
Revision Note	New issued UN GHS format
Prepared by	Pancolour Ink Co., Ltd. / R&D department Tony Wang / +886-3-3270177#304

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End of document

MATERIAL SAFETY DATA SHEET

(1) PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : RITEK DVD DYE

Manufacturer : RITEK CORPORATION

No.42 Kuanfu N. Road , Hsin Chu Industrial Park , 30316
Taiwan

TEL : 886-3-5985696

(2) COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Substance: RITEK DVD DYE

(3) HAZARDS IDENTIFICATION

Most important hazards	: No hazard in normal industrial use
Potential health effects	
Eye	: Causes mild eye irritation
Skin	: Non-irritating to the skin
Inhalation	: Not expected to cause adverse health effects
Ingestion	: Not expected to cause adverse health effects
Further information	: None
Environmental effects	: Not available
Physical and chemical hazards	: No hazard in normal industrial use
Specific hazards	: None

(4) FIRST-AID MEASURES

Eye contact	: Irrigate with flowing water immediately and continuously for 15 mins .consult medical personnel if irritation persists.
Skin contact	: Immediately wash skin with soap and plenty of water. Call a physician if irritation persists.
Ingestion	: No specific antidote.
Inhalation	: Remove to fresh air. consult a physician.

(5) FIRE-FIGHTING MEASURES

Flash Point : not available
Autoflammability : not available
Explosion Limits : not available

Suitable Extinguishing Media : Water,ABC dry chemicals , protein type air foams.

Carbon dioxide may be ineffective on large fires ,due to lack of cooling capacity wich may result in re-ignition.

Special Exposure Hazards Arising from Substance or Combustion Products :

Formation of carbon monoxide ,carbon dioxide .Nox fluorine and hydrogen fluoride at the combustion of the product .Thermal decomposition may release toxic and irritating vapors . Thermal influence results in a pressure build-up in closed drums — danger of rupture.

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 OSHA approved full protective clothing .Collect contaminated water in spillage containers, if any possible and take care for disposal.

(6) ACCIDENTAL RELEASE MEASURES

Personal precautions :wear adequate personal protective equipment , see Section 8

Environmental precautions :prevent from entering into soil ,waterways and ground water.

Methods for cleaning up :Spills should be contained by , and covered with suitable absorbent material removed for disposal.

(7) HANDLING AND STORAGE

Handling

Technical measures :Practice care and caution to avoid skin and eye contact. precaution(such as local ventilation) :Use only in well ventilated area.

Safe handling advice :wash hands and exposed skin before eating ,drinking or smoking and after work .

Storage

Suitable storage conditions :Keep containers tightly closed.

Safe packaging materials :use plastic container that have enough toughness.

(8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures : Good general ventilation should be sufficient for most conditions .

Personal protective equipment

Eye protection :safety glasses.

Skin protection :chemical resistant gloves.

Respiratory protection :use an approved dust respirator

(9) PHYSICAL AND CHEMICAL PROPERTIES

Physical state:Solid

Colour : Royal blue color

Specific temperature / temperature ranges at which changes in physical state occur

Boiling point :not applicable

Melting point :not applicable

Flammable properties :non-combustible product.

Flash point :not available (not applicable)

Autoignition Temperature :not available (non combustible)

Explosion Limits Lower :not available

Upper :not available

Density :not available

Solubility in water :not available (Insoluble)

(10) STABILITY AND REACTIVITY

Stability :stable under normal handling and storage conditions.

Possible hazardous reaction :none

Hazardous Decomposition products :CO , CO2

Further information :none

(11) TOXICOLOGICAL INFORMATION

Product Information

Acute Toxicity

AcuteOral(The oral LD50) :>2000mg/kg

Test animal :Rat (Slc:Wister)

AcuteDermal(The dermal LD50) :not available

Test animal :not available

Local Effects

Primary skin irritation index

Test animal :Rabbit

Non-irritating to the skin.

Primary Eye Irritation Index :6

Test animal :Rabbit

May cause slight eye irritation.

Sensitization :Not available

Test animal :not available

Chronic Toxicity or Long Term Toxicity :Not available

Further Information :None

(12) ECOLOGICAL INFORMATION

Ecotoxicity :Not available.
Persistence/degradability etc. :Not available

(13)DISPOSAL CONSIDERATIONS

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

(14)TRANSPORT INFORMATION

DOT

Proper Shipping Name: None

Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

(15)REGULATORY INFORMATION

Refer below.

Law Concerning the Examination and Regulation

of Manufacture for Chemical Substances

Specified chemical substances :N

Designated Chemical Substances :N

Industrial Safety and Health Law

Dangerous Substances :N

Specified Chemical Substances :N

Organic Solvent Rule :N

Substances Subject to Notification :Y

Poisonous and Deleterious Subst. Control Law :N

Fire Service Law :N

Law for Promoting the Management of Chemical Substances (PRTR Law) :N

Law for Safety of Vessels :N

Air Law :N

Y:regulated by the Law ,N:not regulated by the Law

(16)OTHER INFORMATION

This Information is provided without warranty. The Information is believed to be correct. This information should be used to make an independent determination of the methodes to safeguard workers and the environment.



SAFETY DATA SHEET Asia Pacific GHS Format

Print date: 05-Jan-2016

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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, Donghoon 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

DISCLAIMER: This Material Safety Data Sheet [MSDS] information is provided based on the Hazard Communication Regulations for your region or country and for the use of the persons required to receive this information under those regulations. The information is neither designed nor recommended for any other use or for use by any other person, including for compliance with other laws. Saudi Basic Industries Corporation does not warrant the suitability for use of this MSDS for any other material or product not specifically identified herein. Saudi Basic Industries Corporation does not warrant the accuracy or authenticity of this MSDS unless it has been obtained directly from Saudi Basic Industries Corporation, or posted or viewed on a Saudi Basic Industries Corporation website. Modification of this MSDS, unless specifically authorized by Saudi Basic Industries Corporation, is strictly prohibited. This MSDS is based on information, that is believed to be reliable, but may be subject to change as new information becomes available. Because it is not possible to anticipate all conditions of use, additional safety precautions may be required. Since the use of this material is not under Saudi Basic Industries Corporation' control, each user is responsible for making its own determination as to the safe and proper handling of this material in its own particular use of this material. Saudi Basic Industries Corporation **MAKES NO REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** Each user should read and understand this information and incorporate it into individual site safety programs as required by applicable hazard communication standards and regulations.

End of Safety Data Sheet



MATERIAL SAFETY DATA SHEET

SILVER TARGET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name : Silver Target
Manufacturer/Supplier : SOLAR APPLIED MATERIALS TECHNOLOGY CORP.
Using suggestion and restrictions : Sputtering Targets
Add : NO.1, Gongye 3rd RD., Annan Dis., Tainan City 70955, Taiwan.
Emergency Number: 886-6-5110123
Fax: 886-6-3841758

SECTION 2 - HAZARDS IDENTIFICATION

Hazardous Material Category : —
Hazard Symbols: —
Sing : —
Warn : —
Hazard Statements : Solid. No related harmful information available

SECTION 3 - COMPOSITION, INFORMATION ON INGREDIENTS

Pure material

CAS-No:	Silver : 7440-22-4	EC-Index-No:	—
Percent :	≡ 100wt%	EC-No:	—
Formula Hill:	Silver		

Mixtures:

Chemical properties: —	
Chinese and English names of the hazardous ingredients	Concentration or concentration ranges (ingredient percentage)
—	—

SECTION 4 -First-aid measures

The first aid measures for different exposure routes: inhalation: 1. remove to places for fresh air. 2. If breathing is stopped, execute artificial respiration. 3. Keep the injured person warm and rest. 4. Seek for medical treatment immediately. skin contact: 1.Remove contaminated clothing immediately 2. Flush with water as least 15 minutes. eye contact: 1. Flush eyes with Plenty of water. 2. Seek for medical treatment immediately. ingestion: Seek for medical treatment immediately.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable fire extinguishing media: In the light of the around fire, choose Suitable fire extinguishing media. Specific hazards may be encountered during fire-fighting: 1.Non-combustible If existence by massive form. 2.If the fine powder contacts fire, there is the risk of having fire.3. May produce the noxious gas during combustion. Need to wear
--



**MATERIAL SAFETY DATA SHEET
SILVER TARGET**

appropriate protective clothing and breathing apparatus.
Specific fire-fighting methods: 1. In the condition of safety, remove containers from scene on fire.
 2. Cool the storage tank or the vessel in scene on fire by mist or water.
Special equipment for the protection of firefighters: —

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions:
 Avoid skin contact. Need to wear breathing apparatus if there is dust.
Environmental precautions: —
Methods for cleaning up:
 Containment of the leakage of material. Deal with the leakage of material by Appropriate containers

SECTION 7 - HANDLING AND USE

Handling :
 Wear personal protective suit when operation. Avoid inhalation of dust. Avoid contacting with skin or eyes.
Storage:
 Store in a cool, dry and well-ventilated place. Keep away from incompatible material.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering control :			
Control parameters:			
8 hours time weighted average exposure limits TWA	Short-term exposure limits STEL	maximum exposure limits biological standards CEILING	BEIs
—	—	—	—
Personal protective equipment: (Exposed in the state of pulverulence)			
Respiratory protection: Respiratory apparatus			
Hand protection: Protective gloves			
Eye protection: Chemical protective glasses or safety goggles			
Skin and body protection: Aprons, work shoes			
Hygiene measures: 1. Take off the contamination clothes as soon as possible after operation. 2.No smoking or the diet in the workplace. 3. After processing this thing , wash hands thoroughly with soap4. Maintain the workplace clean.			

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

physical state: Solid 、 white	Odor: Metallic pieces, no odor.
Odor threshold: N/E or N/A	Melting point: 961.9°C
pH value: —	Boiling point/boiling point range: 2212°C
Flammability (solid, gas) : N/E or N/A	Flash point: —°F °C Test method: —



MATERIAL SAFETY DATA SHEET
SILVER TARGET

Decomposition temperature: N/E or N/A	Explosion limits: N/E or N/A
Auto-ignition temperature: N/E or N/A	Vapor density: N/E or N/A
Vapor pressure: N/E or N/A	Solubility: Insoluble
Density: 10.49	Evaporation rate: N/E or N/A
Partition coefficient(n-octanol/water,log Kow): —	

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable Under the normal condition Possible hazardous reactions under specific conditions: — Conditions to avoid: Avoid generating dust Materials to avoid: Strong acid 、 Alkali. If getting wet, powder will turn up self-heating. Hazardous decomposition products: —
--

SECTION 11 – TOXICOLOGICAL INFORMATION:

Routes of exposure: .Eyes injury. 2.Lead skin into blue. 3.Excessive inhalation of the silver vapor will cause damage to lungs. Symptoms: LD50 : \geq — mg/kg LC50 : \geq — mg/m ³ /4H LDL0 : — mg/kg Chronic toxicity or long term toxicity: —
--

SECTION 12 - ECOLOGICAL INFORMATION :

Ecotoxicity: — Persistence and degradability: — Bioaccumulative potential: — Mobility in soil: — Other adverse effects: —
--

SECTION 13 - DISPOSAL CONSIDERATIONS

Methods of waste disposal: Disposal in accordance with the present laws and regulations.

SECTION 14 - TRANSPORT INFORMATION

United Nations number(UN No): No information available UN Proper shipping name: No information available Transport hazard class(es): No information available Packing group: No information available Marine pollutant(Yes/No): No

SECTION 15 - REGULATORY INFORMATION

Applicable regulations: In accordance with the present laws and regulations.



**MATERIAL SAFETY DATA SHEET
SILVER TARGET**

SECTION 16 - OTHER INFORMATION

Issued By: SOLAR APPLIED MATERIALS TECHNOLOGY CORP.

Creation Date: December 2011

The information above is believed to be accurate and represents the best information which is 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 way shall the company 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 the company has been advised of the possibility of such damages.