

2009年 03月 11日

環境關理 物質 不使用 證明書

會社名：히로세코리아(주)

部 署：품질경영팀

責任者：차 재환 차장



貴社에 販賣하는 製品 및 製品의 使用材料, 包裝材, 製造工程에
含有되는 添加劑 等に 對하여 貴社가 要求하는 管理水準
(使用禁止對象)의 物質을 使用하고 있지 않음을 證明합니다.
當社의 製品 및 製品의 使用材料, 包裝材, 製造工程에 含有되는
添加劑 等に 對하여 以下の 成分으로 構成되어 있음을 報告 합니다.

(1) 製品 使用素材

NO	제품명	부품명	원자재명	원자재 MAKER	비 고
1	FH23-51S-0.3SHW(05)	HOUSING	LCP 2140GM	UENO	
		LOCK LEVER	LCP E6008MR-B	SUMITOMO	
		CONTACT	C5191R	NIPPON MINING&METALS	

(2) 測定可能物質의 ICP Data는 別紙 參照 要望

(3) 測定可能物質의 成分 分析 Data는 別紙 參照 要望

以上



TEST REPORT

Applicant : Ueno Fine Chemicals Industry Ltd.
Address : 1-127, Higashiarioka, Itami, Hyogo, Japan 664-0845

Page: 1 of 6

Report No. RT08R-8739-001-A

Date: May 09, 2008

Sample Description : The following submitted sample(s) said to be:-

Name/Type of Product : Plastic pellet
Name of Material : Liquid Crystal Polymer
Sample ID No. : RT08R-8739-001
Item No. : 2140GM-BK Lot No.HD205-61099
Manufacturer/Vender : Ueno Fine Chemicals Industry Ltd.

Sample received : May 02, 2008
Testing Date : May 02, 2008 ~ May 09, 2008
Testing Laboratory : Intertek Testing Center
Testing Environment : Temperature : (22 ~ 26) °C Relative Humidity: (55 ~ 65) %

Test Method(s) : Please see the following page(s).
Test Result(s) : Please see the following page(s).

- * Note 1 : The test results presented in this report relate only to the object tested.
- * Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.
- * Note 3 : The item no. is assigned by client and indicated according to their requirement and guarantee letter.

Approved by,

Authorized by,

Jade Jang / Lab. Technical Manager

Bo Park / Lab. General Manager

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Intertek Testing Center



TEST REPORT

Page: 2 of 6
Date: May 09, 2008

Report No. RT08R-8739-001-A

Sample ID No. : RT08R-8739-001

Sample Description : Plastic pellet

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	5	N.D.
Mercury (Hg)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Hexavalent Chromium (Cr ⁶⁺)	mg/kg	With reference to US EPA 3060A and determined by UV-VIS	1	N.D.
Polybrominated Biphenyl (PBBs)				
Monobromobiphenyl	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by GC/MS	5	N.D.
Dibromobiphenyl	mg/kg		5	N.D.
Tribromobiphenyl	mg/kg		5	N.D.
Tetrabromobiphenyl	mg/kg		5	N.D.
Pentabromobiphenyl	mg/kg		5	N.D.
Hexabromobiphenyl	mg/kg		5	N.D.
Heptabromobiphenyl	mg/kg		5	N.D.
Octabromobiphenyl	mg/kg		5	N.D.
Nonabromobiphenyl	mg/kg		5	N.D.
Decabromobiphenyl	mg/kg		5	N.D.
Polybrominated Diphenyl Ether (PBDEs)				
Monobromodiphenyl ether	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg		5	N.D.
Tribromodiphenyl ether	mg/kg		5	N.D.
Tetrabromodiphenyl ether	mg/kg		5	N.D.
Pentabromodiphenyl ether	mg/kg		5	N.D.
Hexabromodiphenyl ether	mg/kg		5	N.D.
Heptabromodiphenyl ether	mg/kg		5	N.D.
Octabromodiphenyl ether	mg/kg		5	N.D.
Nonabromodiphenyl ether	mg/kg		5	N.D.
Decabromodiphenyl ether	mg/kg		5	N.D.

Tested by : Nikkie Lee, HR Kim, JM You, Ellen Jung

Notes : mg/kg = ppm = parts per million
< = Less than
N.D. = Not detected (<MDL)
MDL = Method detection limit

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Intertek Testing Center

Seoul Office : Tel : 02-2109-1250 Fax : 02-2109-1259 Gumi Office : Tel : 054-462-7647 Fax : 054-462-7657 Web Site : www.intertek.co.kr
Seoul Lab. : #709, 7Fl, Ace Techno Tower V, 197-22, Guro-3Dong, Guro-Gu, Seoul 152-766 Korea Tel : 02-2109-1260 Fax : 02-2109-1258
Ulsan Lab. : #340-2, Yongam-Ri, Chongryang-Myun, Ulju-Gun, Ulsan 689-865 Korea Tel : 052-257-6754 Fax : 052-276-6792



TEST REPORT

Page: 3 of 6
Date: May 09, 2008

Report No. RT08R-8739-001-A

Sample ID No. : RT08R-8739-001
Sample Description : Plastic pellet

Test Items	Unit	Test Method	MDL	Results
Bromine (Br)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Chlorine (Cl)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.

Tested by : Nikkie Lee

Notes : mg/kg = ppm = parts per million
< = Less than
N.D. = Not detected (<MDL)
MDL = Method detection limit

* View of sample as received;-



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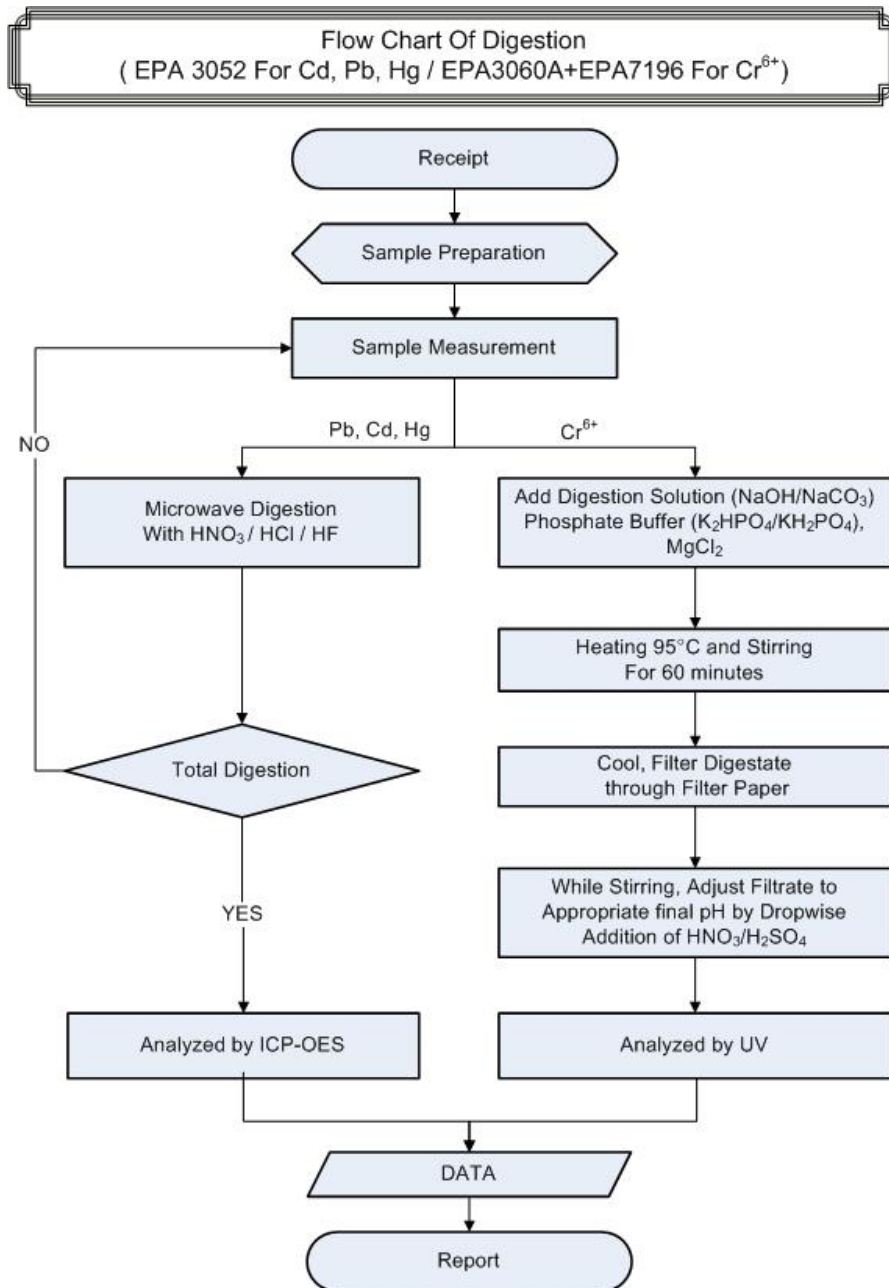
Intertek Testing Center

Seoul Office : Tel : 02-2109-1250 Fax : 02-2109-1259 Gumi Office : Tel : 054-462-7647 Fax : 054-462-7657 Web Site : www.intertek.co.kr
Seoul Lab. : #709, 7Fl, Ace Techno Tower V, 197-22, Guro-3Dong, Guro-Gu, Seoul 152-766 Korea Tel : 02-2109-1260 Fax : 02-2109-1258
Ulsan Lab. : #340-2, Yongam-Ri, Chongryang-Myun, Ulju-Gun, Ulsan 689-865 Korea Tel : 052-257-6754 Fax : 052-276-6792

TEST REPORT

Report No. RT08R-8739-001-A

Sample ID No. : RT08R-8739-001
Sample Description : Plastic pellet



** Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.

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Intertek Testing Center

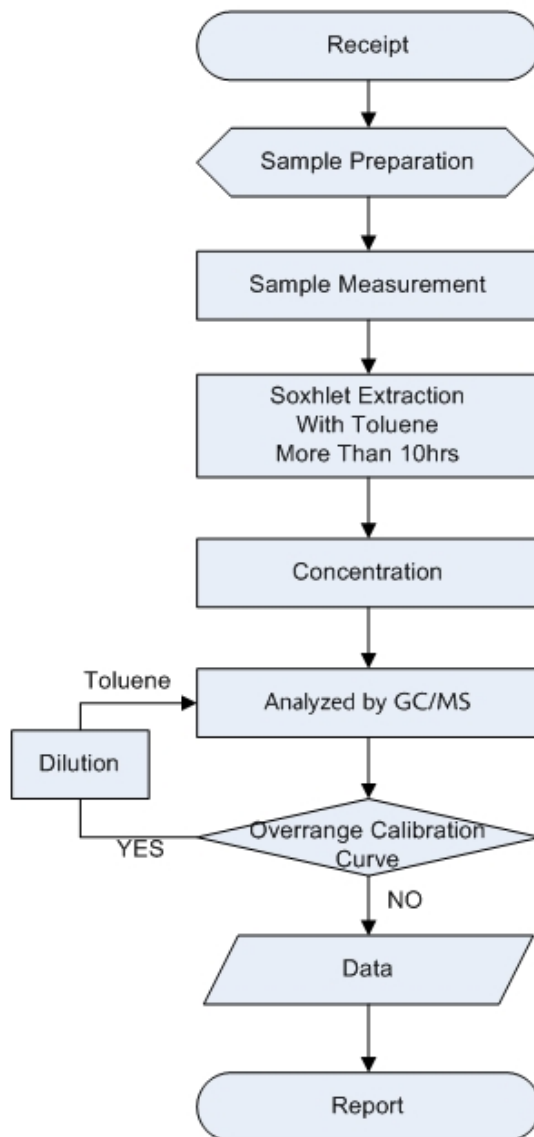
TEST REPORT

Report No. RT08R-8739-001-A

Page: 5 of 6
Date: May 09, 2008

Sample ID No. : RT08R-8739-001
Sample Description : Plastic pellet

Flow Chart Of Digestion (EPA 3540C For PBB₅/PBDE₅)



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TEST REPORT

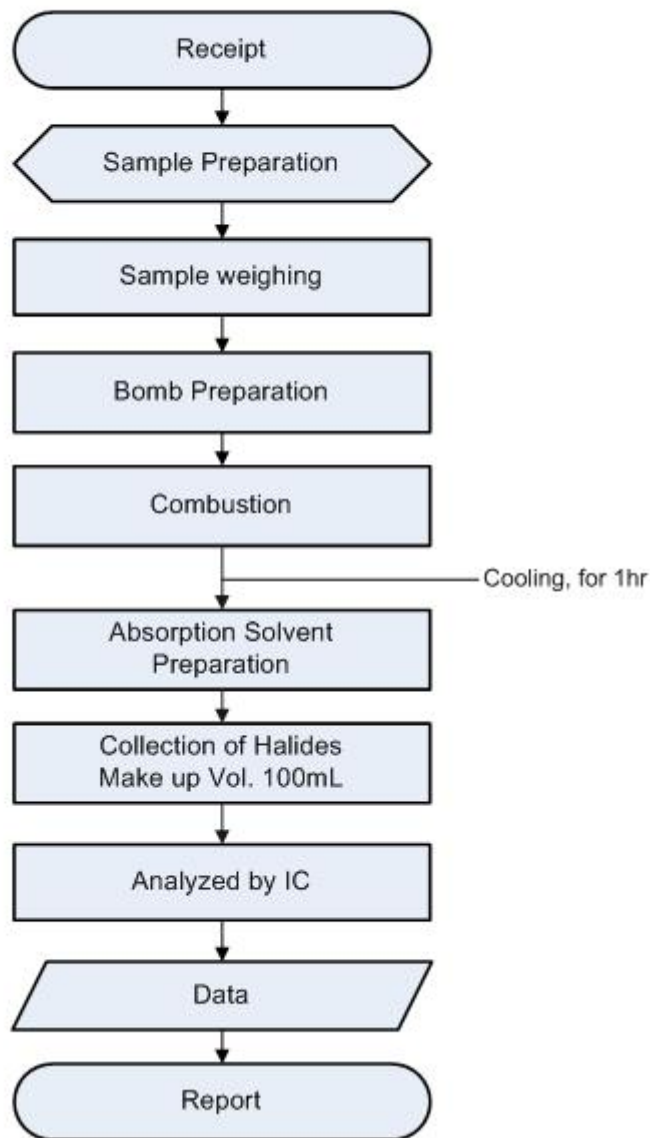
Report No. RT08R-8739-001-A

Page: 6 of 6
Date: May 09, 2008

Sample ID No. : RT08R-8739-001

Sample Description : Plastic pellet

Flow Chart Of Halogen Testing (EN14582)



***** End of Report *****

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Intertek Testing Center

Material Safety Data Sheet

Revised date Oct. 30, 2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name : UENO LCP 2140GM
Name of Company : UENO FINE CHEMICALS INDUSTRY,LTD.
Section in Charge : QUALITY ASSURANCE DEPT.
Address : 2-4-8,KORAIBASHI,CHUO-KU OSAKA, 541-8543 JAPAN
Phone No. : 81-6-6203-6193
Fax No. : 81-6-6222-2413
Emergency : UENO INSITUTE FOR CHEMICAL SCIENCE
Emergency Phone No. : 81-795-68-7205

2. COMPOSITION INFORMATION ON INGREDIENTS

Chemical Family : Wholly Aromatic Liquid Crystal Polyester resin
Specification of division : Composition
Ingredients and Composition : Resin 60wt%
Glass Fiber + Mineral 40wt%
Small amount of pigments may contain.
Serial No. in Official Gazette : (7)-2365 (base resin)
CAS-No. : 90967-43-4 (base resin)

3. HAZARDS IDENTIFICATION

Hazards : Not applicable
Harmfulness : Not applicable

4. FIRST-AID TREATMENT

Eye Contact : In the case of molten material , immediately flush and cool with clean water and seek medical attention.
In the case of solid or powder materials, immediately flush with clean water.
Seek medical attention if discomfort and incompatibility persist.

Skin Contact : In the case of molten material , immediately cool with clean water.
Do not forcedly peel off the solidified resin on the skin.
Seek medical attention if burned.

Inhalation : If nausea is caused by gas from the molten materials , remove immediately to fresh air.
When nausea persists, seek medical attention.

Ingestion : Help to vomit as much as possible . Seek medical attention if discomfort persists.

5. FIRE-FIGHTING MEASURES

Extinguishing Media : Water, Form fire-extinguishing agent, Powder fire-extinguishing agent, Carbon dioxide gas

Extinguishing Measure : Recommend to use water for extinguishing.
Usual extinguishing measure is applicable.

Specific Harm : Incomplete combustion of the material may cause carbon mono-oxide , phenol and other toxic gases.

Protect of Extinguisher : Protective equipment such as gas mask should be worn.

6. ACCIDENTAL RELEASE MEASURES

Precautions of human : Clean up by broom or vacuum-cleaner to avoid slipping and tumbling by spilt pellets.

Precautions of environment: Follow the "Manual for preventing release of resin pellets " to avoid ingestion by marine organism and birds.

7. HANDLING AND STORAGE

HANDLING : Avoid to inhale emitted gas during molding.
Do not directly touch heated resin.

STORAGE : Do not store in high temperature and high humidity conditions, and avoid sunlight.
Stored away from fire and sources of heat.

8. EXPOSURE CONTROL /PERSONAL PROTECTION

Facility measures : In case of using molten material during molding , establish suitable local ventilation.
In case of using dust, use an airtight container with dust explosion proof.
Establish bodywash and eyewash equipments.

Protection

Eye protection : Wear safety glasses or goggles.

Body protection : In case of handling molten material during molding , wear heatproof gloves and long sleeve clothes in order to prevent thermal burns.

Respiratory protection : Wear dustproof mask.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Solid (pellet)

Melting Point : 330°C

Boiling Point : Not applicable

Vapor pressure : Not applicable

Specific Gravity : 1.74

Solubility in water : Insoluble

Flash Point : No data

Ignition Point : >540°C

Explosion Limit : Not applicable

Flammability : Flammable but self-extinguishing as keeping away from flame.

Ignitivity : Nonspontaneous ignition
Nonreactive with water

Oxidativity : None

Self-reactivity·explosively : None

Dust explosively : No data

10. STABILITY AND REACTIVITY

Stability·Reactivity : Stable and nonreactive on general handling and storage conditions.

11. TOXICOLOGICAL INFORMATION

Corrosive Property	: Unknown
Irritant Property	: Vapor generated during drying and molding may cause irritation to eyes and skins.
Acute Toxicity	: Unknown
Subacute Toxicity	: Unknown
Chronic Toxicity, Long-term toxicity	: Unknown
Carcinogenicity	: Unknown
Mutagenicity	: Unknown
Reproductive toxicity	: Unknown
Teratogenicity	: Unknown
Others	
Harmfulness of glass fibers	: Glass fibers of more than 5 μm may cause itching . Skin irritation might form on occasion.

12. ECOLOGICAL INFORMATION

Biodegradability	: Unknown
Bioaccumulation	: Unknown
Fish Toxicity	: Unknown

13. DISPOSAL CONSIDERATIONS

This materials is classified as industrial waste and waste plastics based on "Law for treatment and cleaning of waste".

In case of disposal, ask approved industrial waste disposal agency or commission local governments in accordance with waste disposal law.

In case of burnout, use well-controlled incinerator and treat them in accordance with waste disposal law ,air pollution control law, and water pollution control law.

14. TRANSPORT INFORMATION

UN class and UN number	: Not applicable
Notice	: Avoid rough handling and contact with water in order to prevent break of bags. Stack without drop and damage, and make sure to provide preventing load collapse.

15. REGULATORY INFORMATION

Disposal Regulation	: Law for treatment and cleaning disposal waste.
---------------------	--

16. OTHER INFORMATION

Ueno Fine Chemicals Industry, LTD. do not assume any liability whatsoever for the accuracy or completeness of the information contained herein, although stated information is prepared based on the documents, information and data that can be obtained as far as possible.

This material safety data sheet is prepared for general use. Adequate safety and environmental countermeasures for actual uses and applications should be provided in case of unusual use.

ヒロセ電機株式会社 御中

2008年11月18日
住友化学株式会社
電子部品材料事業部



重金属定量分析データの件

拝啓 貴社ますますご清栄のこととお慶び申し上げます。平素は格別のご高配を賜り、厚く御礼申し上げます。さて、ご依頼いただきました下記分析結果を別紙の通りご報告いたします。ご査収のほどよろしくお願い申し上げます。

敬具

記

(1)対象製品名

スミカスーパ E6008 MR-B

(2)分析対象重金属

- ・カドミウム
- ・鉛
- ・水銀
- ・六価クロム

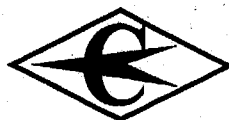
(3)備考

別紙分析値は、代表ロットの代表サンプルの分析値であり、保証値ではございません。

(4)本件に関するお問い合わせ先

住友化学株式会社 電子部品材料事業部(筑波)
SEP営業開発・カスタマーサポートチーム
電話番号:029-864-4177

以上



ANALYSIS CENTER CO., LTD.

July 18, 2008
Report No. 08-0599-62

CERTIFICATE OF ANALYSIS

Messrs. SUMITOMO CHEMICAL Co., LTD

Address : 27-1, Shinkawa 2-chome, Chuo-ku, Tokyo 104-8260 Japan

Subject : Content investigation of heavy metals
 Production name : Written in Table 1.
 Measurement part : —
 Analysis date : from May 21st to July 16th , 2008
 Pretreatment : Cd based on BS EN 1122:2001
 Pb Acid decomposition method (complete dissolution)
 Hg Heating vaporized method (complete decomposition)
 Cr(VI) based on EPA SW-846 Method 3060A
 Analysis method : Cd, Pb Electrothermal Atomizer Atomic Absorption Spectrometry
 Hg Atomic Absorption Spectrometry
 Cr(VI) Diphenylcarbazide Absorptiometry
 Apparatus : Cd, Pb VARIAN SpectraA 220Z
 (Lower analysis limit: Cd...1wtppm, Pb...2wtppm)
 Hg NIPPON INSTRUMENTS MA-2000 (Lower analysis limit: 1wtppm)
 Cr(VI) SHIMADZU UVmini-1240 (Lower analysis limit: 3wtppm)
 Analysis flow : cf. "Analysis flow of Cd, Pb, Hg and Cr(VI)"
 Analyzer : Masaaki Shimizu, Kiyonobu Kobayashi

RESULT OF ANALYSIS

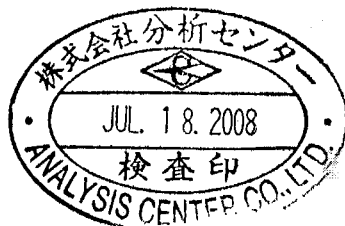
Table-1	unit: wtppm			
Production name	Cd	Pb	Hg	Cr(VI)
SUMIKASUPER E6008 MR-B	<1	4	<1	<3

Accuracy of the analysis result in Table-1 is proved.

JIS Q 17025 (ISO/IEC 17025) Laboratory Accreditation Scheme
 Chemical testing (Hazardous substance analysis)
 Certificate NO. RTL01360
 1-12-2, HIGASHI-MUKOJIMA, SUMIDA-KU, TOKYO
 TEL 03-3616-1612 FAX 03-3616-1616

ANALYSIS CENTER CO., LTD.

Products evaluation group



Inspected by : *H. Ohbuchi*

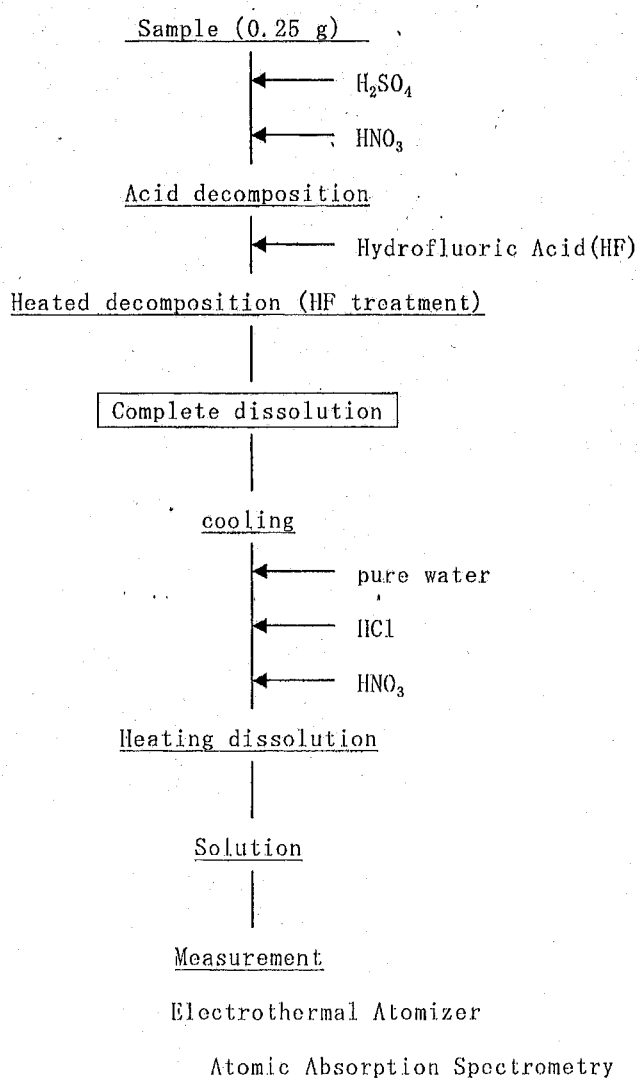
H. Ohbuchi

Report No. 08-0599-62

Messrs. SUMITOMO CHEMICAL Co., LTD

Specimen : SUMIKASUPER E6008 MR-B

Analysis flow of Cd and Pb



Specimen : SUMIKASUPER E6008 MR-B

Analysis flow of Hg

Sample (0.05 g)

Heating vaporization

Complete decomposition

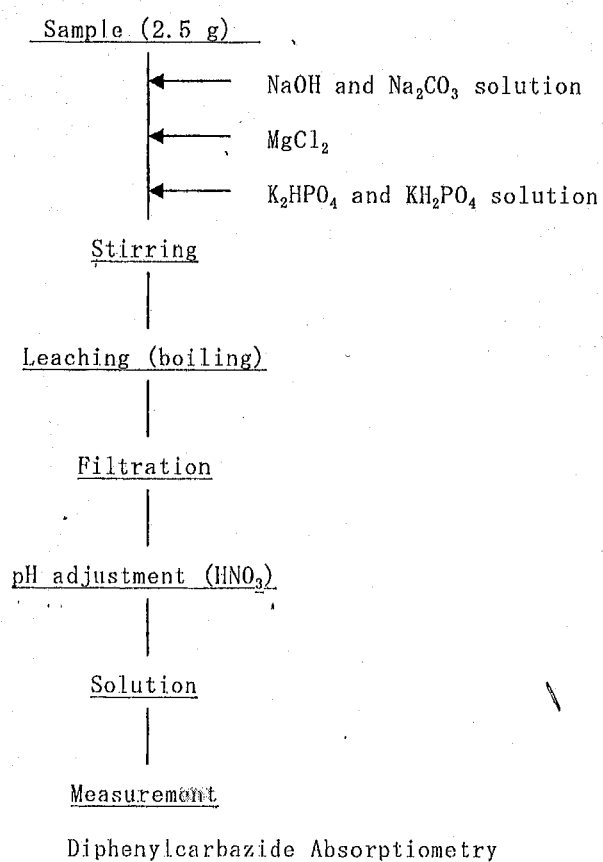
Measurement

Heating Vaporized

Atomic Absorption Spectrometry

Specimen : SUMIKASUPER E6008 MR-B

Analysis flow of Cr^{6+}



お客様各位

2005年12月
住友化学株式会社
電子部品材料事業部

環境関連物質調査について

拝啓 貴社ますますご清栄のこととお慶び申し上げます。平素は格別のご高配を賜り、厚く御礼申し上げます。さて、ご依頼いただきましたR o H S 指令規制対象物質の定量分析値について、下記のとおり連絡致します。

敬具

記

住友化学株式会社 電子部品材料事業部におきましては、R o H S 指令規制対象物質である鉛、水銀、カドミウム、六価クロム、PBB、PBDEに関し、以下の理由から臭素系難燃剤（PBB、PBDE）の定量分析については実施しておりません。

- 1) 製品原料として臭素系難燃剤を使用していないことから、特定の化学構造を持つ当該物質群が、不使用状況下で製品中に存在する可能性は極めて低く、その定量分析の実施に意義が無いと判断していること。
- 2) 分析法の規格が定まっておらず、分析方法により結果が異なる可能性があること。
- 3) 当該臭素系難燃剤を正確に分析する場合には、当該難燃剤そのものを標準物質として使用するため、分析によって環境負荷物質を取り扱い・排出することとなり、本来の目的（環境負荷物質の管理・削減）の趣旨から外れること。

従いまして、定量分析値のご要望に対しては、「対象製品の原材料として臭素系難燃剤を使用していない旨を記載した書面」を発行し、定量分析値に代えさせていただいております。

何卒、ご理解賜りますようお願い申し上げます。

本件に関するお問い合わせ先
住友化学株式会社 電子部品材料事業部(筑波)
SEP営業開発・カスタマーサポートチーム
電話番号：029-864-4177

以上

4

MATERIAL SAFETY DATA SHEET**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product name SUMIKASUPER LCP (with GF)
 Available grade E4008 MR, E4008 MR-B, E6006 MR, E6006 MR-B, E6006LHF B, E6006LHF Z, E6006LHF B Z, E6006L MR, E6006L MR-B, E6007LHF Z, E6007LHF B Z, E6008 MR, E6008 MR-B, E6010 MR

Chemical name Aromatic polyester resin
 General use Electronic parts
 Manufacturer **Sumitomo Chemical Co., Ltd.**
 ELECTRONIC MATERIALS DIV.
 27-1, Shinkawa 2-chome, Chuo-ku, Tokyo
 104-8260 Japan
 TEL +81-3-5543-5845
 FAX +81-3-5543-5939

Emergency Contact **Sumitomo Chemical Co., Ltd.**
 ELECTRONIC MATERIALS DIV.
 TEL +81-3-5543-5845
 FAX +81-3-5543-5939

2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS No.	wt. %	OSHA PEL	ACGIH TLV
Aromatic polyester resin	60088-52-0	45-75%	N/E	N/E
Glass fiber	65997-17-3	25-55%	N/E	N/E
Carbon black *	1333-86-4	<1%	3.5 mg/m ³	3.5 mg/m ³

(N/E Not Established)

*Black Grades contain carbon black.

3. HAZARDS IDENTIFICATION**Emergency overview**

White ~ yellowish white or black pellet and the properties of this material have not been fully investigated. Avoid contact with skin and eyes. Avoid release to the environment.

Potential Health Effects

Inhalation Not known.
 Eye contact Not known. May cause scratch the surface of eyes.
 Skin contact Not known. Prolonged or repeated contact may cause skin irritation.
 Ingestion Not known.
 Chronic/ Carcinogenicity Not known.
 Carbon black is listed by IARC as Group 2B(possibly carcinogenic to humans), and not listed by NTP or OSHA as a carcinogen.

4

4. FIRST AID MEASURES

First aid Procedures

Inhalation

If exposed to excessive levels of gases that may be formed at elevated temperatures, remove to fresh air. Give the victim rest. Get immediate medical attention. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Never give anything by mouth to an unconscious person.

Eye contact

Rinse immediately with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Remove contact lenses if easily. Get medical attention if irritation develops or persists.

Skin contact

For hot material, immediately immerse or flush the affected area with large amounts of cold water to dissipate heat. Cover with clean cotton or gauze and get medical attention immediately. Get medical attention if irritation develops or persists.

Ingestion

Immediately induce vomiting and rinse mouth with plenty of water. Get medical attention. Never give anything by mouth and induce vomiting in unconscious or confused persons.

Medical treatment

Symptomatic treatment is advised.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use carbon dioxide or dry chemical for small fires, universal foam or water spray for large fires.

Hazardous combustion products

May generate CO or HF when heated to burning.

Fire-fighting instructions

Wear self-contained breathing apparatus. Dike area to prevent runoff from entering sewer or water sources. Evacuate personnel to a safe area. Keep personnel removed and upwind of fire.

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus. Wear suitable protective clothing. See also Section 8.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection (see section 8) when cleaning spill.

Environmental precautions

Avoid runoff into storm sewers and ditches, which lead to waterways.

4

Methods for cleaning up

In case of spill, vacuum or sweep up material and place in a disposal container immediately. Reduce airborne dust and prevent scattering by moistening with water. Scrub contaminated area with detergent and water. Dispose of as waste following local regulations.

7. HANDLING AND STORAGE

Handling

Use with adequate personal protections. Avoid contact with eyes and skin. Avoid inhaling gases from heated material. Wash thoroughly after handling. Keep away from all ignition sources. Ground and bond containers when transferring material.

Storage

Store in a cool, well-ventilated place away from sources of heat, sources of ignition and direct sunlight. Keep container tightly closed in a well-ventilated place. Keep only in the original container.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure limits

OSHA PEL (2003)

Carbon black 3.5 mg/m³

Particles Not Otherwise Specified [PNOS]

5 mg/m³ (Respirable fraction)15 mg/m³ (Total dust)

ACGIH TLV (2003)

Carbon black 3.5 mg/m³

Particles Not Otherwise Specified [PNOS]

3 mg/m³ (respirable particles)10 mg/m³ (inhalable particles)

Engineering controls

Use local ventilation at places where vapour can be released into the workplace air. Always clean protective equipment and workplace. Keep container tightly closed.

Personal protective equipment

Respiratory protection

A respirator is recommended for prolonged handling or exposure.

Hand protection

Wear chemical resistant gloves.

Eye protection

Wear safety goggles or equivalent eye protection.

Skin protection

Wear appropriate protective clothing to avoid skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

White ~ yellowish white or black pellet

Odor

Odorless

Physical state

Solid

pH

Not applicable.

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Boiling point	Not applicable.
Melting point	Not available.
Flash point	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.
Vapor pressure	Not available.
Relative density	ca.1.4-1.9
Solubility in water	Insoluble
Solubility in other solvents	Not available.
Partition coefficient (octanol / water)	Not available.
Viscosity	Not available.
Vapor density	Not available.
Decomposing point	>500°C

10. STABILITY AND REACTIVITY

Conditions to avoid	Direct sunlight, source of heat, open flames, sparks and high temperature
Materials to avoid	No information available.
Hazardous decomposition products	May generate CO or HF when heated to burning.
Hazardous polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

No toxicological data are available on the material as such. The following data are applicable to "Aromatic polyester resin" listed below.

[Aromatic polyester resin]

Eye effects	Mildly irritating. (rabbits)
Skin effects	Non-irritating. (rabbits)

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Waste must be disposed in accordance with federal, state and local environmental control regulations. Empty containers must be handled with care due to material residue.

14. TRANSPORT INFORMATION (not meant to be all-inclusive)

UN Class	Not classified.
UN number	None

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15. REGULATORY INFORMATION (not meant to be all-inclusive)

U.S.A All components are listed on TSCA Inventory.

Europe Union All components are listed on EINECS.

16. OTHER INFORMATION

MSDS Status Newly prepared.

This information only concerns the above-mentioned product and does not need to be valid if used with other(s) or in any process. The information is, to our best present knowledge, correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

(This is the last page of this MSDS.)



TEST REPORT

REPORT NO. JP/2008/050912
DATE: June 19, 2008
PAGE: 1 OF 1

CLIENT : NIPPON MINING & METALS CO., LTD. KURAMI WORKS
SAMPLE DESCRIPTION : C5191R (NIPPON MINING & METALS CO.,LTD.)
CLIENT REF.NO :
TESTING DATE : 2008/05/19 TO 2008/05/26
SAMPLE RECEIVED : 2008/05/16

WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST ITEM(S)	UNIT	RESULT	METHOD	INSTRUMENT	R.L.
CADMIUM(Cd)	ppm	N.D.	EPA3051A	ICP-OES	1
LEAD(Pb)	ppm	12	EPA3051A	ICP-OES	10
MERCURY(Hg)	ppm	N.D.	EPA3051A	ICP-OES	5
CHROMIUM VI(Cr(VI))	ppm	N.D.	EPA3060A, EPA7196A	UV/VIS	2

NOTES : R.L. = reporting limit N.D. = not detected

Test process and/or expression of test result for Cr(VI) have been specified by client.

The content of Cr(VI) has been calculated with regard to the sample weight as specified by client.

<END>

後藤 邦之



Kuniyuki Goto / Laboratory Manager
SGS Far East Ltd., Green Testing Center

JP 825809

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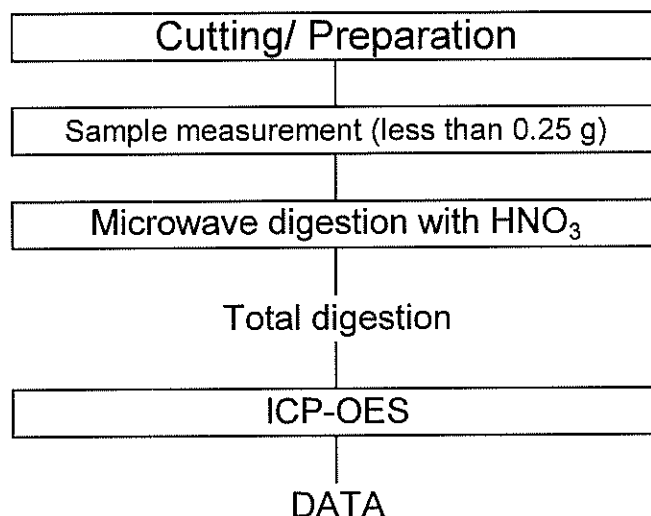
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REPORT NO. JP/2008/050912

Flow chart of digestion (EPA 3051A)



The samples were dissolved totally by pre-conditioning method according to above flow chart.

Section Chief Yukihiro Ouchi

The flowchart can be applied for Cd, Pb testing.

JP 825810

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Attn: Mash from Kelvin (NMS)
MSDS for C5191R (pg 1/2)

MATERIAL SAFETY DATA SHEET

MSDS FILE No. (KURAMI WORKS) : 05-1287

(based on Form OSHA-174)

IDENTITY (AS Used on Label and List)

Product Class : Phosphor Bronze Strip
Trade Name : JIS.H3110, C5191R. (Equivalent to ASTM.B103, C51900),
CAS No : (Copper 7440-50-8, Tin 7440-31-5, Phosphorus 7723-14-0)
Chemical Composition

	Content (wt%)	CAS No.
Tin (Sn)	5.5~7.0	7440-31-5
Phosphor (P)	0.03~0.35	7723-14-0
Copper (Cu)	Balance	7440-50-8
Sn, P, Cu	99.5%	-

Section I

Manufacturer's Name NIKKO METAL MANUFACTURING CO., LTD. KURAMI WORKS	Date Prepared August 26th, 2005
	Signature of Person in Charge <i>Chitro Izumi</i> IZUMI, Chitro Senior Technical Supervisor, Quality Assurance
Address 3 Kurami Samukawa-cho Kouza-gun Kanagawa prefecture 253-0101 JAPAN	Signature of Person Responsible <i>Hitaki Watanabe</i> WATANABE, Hitaki Manager, Quality Assurance Section
Telephone Number for Information (Quality Assurance) +81-467-75-7285	
Facsimile Number for Information (Quality Assurance) +81-467-74-6971	

Section II Hazardous Ingredients / Identity Information

Hazardous Components (Specific Chemical Identity - Names OSHA Fed ACGIH TLV)

Nothing for ordinary service condition

Section III Physical / Chemical Characteristics

Boiling Point 2630 °C for Copper 2275 °C for Tin	Specific Gravity (H₂O = 1) 8.83
Vapor Pressure (mmHg) N/A	Melting Point 1045 deg. cent. for C5191 Phosphor Bronze
Vapor Density (Air = 1) N/A	Evaporation Rate (Butyl Acetate - 1) N/A
Solubility in Water N/A	
Appearance and Odor Brown - Red (solid) ; Odor - None	

Section IV Fire and Explosion Hazard Data

Flash Point (Method Used) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media N/A (stable, nonflammable substance)			
Special Fire Fighting Procedures Not specified			
Unusual Fire and Explosion Hazards Metal products do not present fire or explosion hazards under normal conditions.			

MSDS C5191R

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Section V		Reactivity Data	
Stability	Unstable		Conditions to Avoid
	Stable	X	
Incompatibility (Materials to Avoid)			
Nothing			
Hazardous Decomposition or Byproducts			
Nothing			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	
Section VI		Health Hazard Data	
Route(s) of Entry :	Inhalation ?	Skin ?	Ingestion ?
	N/A	N/A	N/A
Health Hazardous (Acute and Chronic)			
	N/A		
Carcinogenicity :	NTP ?	IARC Monographs ?	OSHA Regulated ?
	N/A	N/A	N/A
Signs and Symptoms of Exposure			
	N/A		
Medical Conditions			
Generally Apparent by Exposure			
	N/A		
Emergency and First Aid Procedures			
	N/A		
Section VII		Precautions for Safe Handling and Use	
Steps to Be Taken in Case Material is Released or Spilled			
	N/A		
Where Disposal Method			
	Collect scrap for remelting.		
Precautions to Be Taken in Handling and storing			
<u>For Handling</u>			
•Put safety gloves on to protect your hands from edges of coils which might cut your hands.			
•Wear safety glasses when metal powders or chips are expected to be generated in the work.			
•Put safety shoes on when handling heavy coils.			
<u>For Storing</u>			
•The environment of stocking area should be free from acid, alkali, chloride, sulfide and other corrosive chemicals to prevent from rusting or corrosion.			
Other Precautions			
	No special requirements		
Section VIII		Control Measures	
Respiratory Protection (Specify Type)			
Wearing a mask be recommended in the work such as abrasion and buffing which generates metal powders or chips.			
Ventilation	Local Exhaust	Special	
	None	None	
	Mechanical (General)	Other	
	None	None	
Protective Gloves			
Put safety gloves on to protect your hands from edges of coils which might cut your hands.			
Eye Protection			
Wear safety glasses when metal powder is expected to be generated in the work.			
Other Protective Clothing or Equipment			
Put safety shoes on when handling heavy coils.			
Work / Hygiene Practices			
	None		
Influence to environments	Fish on toxicity	: TLm 48 hr. on CuSO4	
	Salmogridenert	: 0.038 ~ 0.8 ppm	
	Oryzias Latipes	: 2.1 ~ 24ppm	