

2008年 11月 28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	DF30FC-60DP-0.4V(81)	HOUSING	LCP 6040GM	UENO	
		CONTACT	C5210R	NIHON 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 5

Report No. RT08R-8158

Date: Mar. 17, 2008

---

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

Name/Type of Product : Plastic pellet  
Sample ID No. : RT08R-8158  
Item No. : 6040GM-MD  
Manufacturer/Vender : Ueno Fine Chemicals Industry Ltd.

Sample received : Mar. 11, 2008  
Testing Date : Mar. 11, 2008 ~ Mar. 17, 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.

Tested by,

---

E.Y.Lee / Chemist

Authorized by,

---

H.W.Yoo / Lab Manager

This Test Report is issued by the Company subject to its Terms and Conditions of Business printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This Test Report shall not be reproduced, except in full, without prior written consent of the Company.

Intertek Testing Center



## TEST REPORT

Report No. RT08R-8158

Page: 2 of 5  
Date: Mar. 17, 2008

Sample ID No. : RT08R-8158

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 <sup>6+</sup> )	mg/kg	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.

Notes : mg/kg = ppm = parts per million

< = Less than

N.D. = Not detected ( <MDL )

MDL = Method detection limit

This Test Report is issued by the Company subject to its Terms and Conditions of Business printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This Test Report shall not be reproduced, except in full, without prior written consent of the Company.

### 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](http://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-8158

Page: 3 of 5  
Date: Mar. 17, 2008

Sample ID No. : RT08R-8158

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.
Antimony (Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.

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

\* View of sample as received;-



This Test Report is issued by the Company subject to its Terms and Conditions of Business printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This Test Report shall not be reproduced, except in full, without prior written consent of the Company.

**Intertek Testing Center**

# TEST REPORT

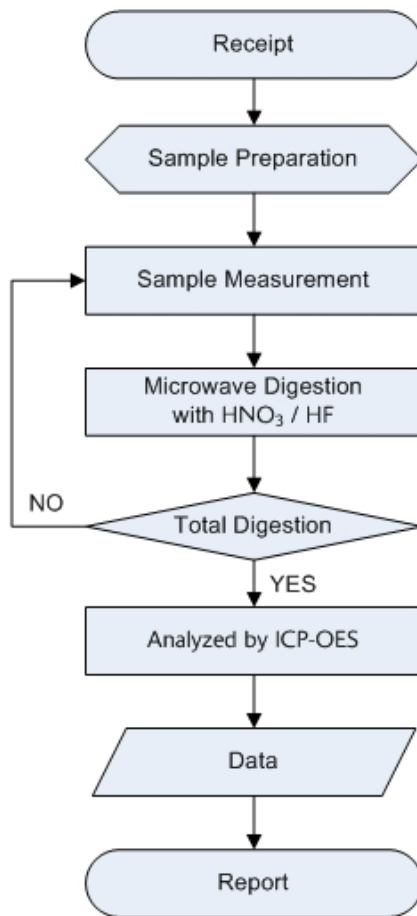
Report No. RT08R-8158

Page: 4 of 5  
Date: Mar. 17, 2008

Sample ID No. : RT08R-8158

Sample Description : Plastic pellet

## Flow Chart Of Digestion ( EPA 3052 For Cd, Pb )



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

This Test Report is issued by the Company subject to its Terms and Conditions of Business printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This Test Report shall not be reproduced, except in full, without prior written consent of the Company.

Intertek Testing Center

# TEST REPORT

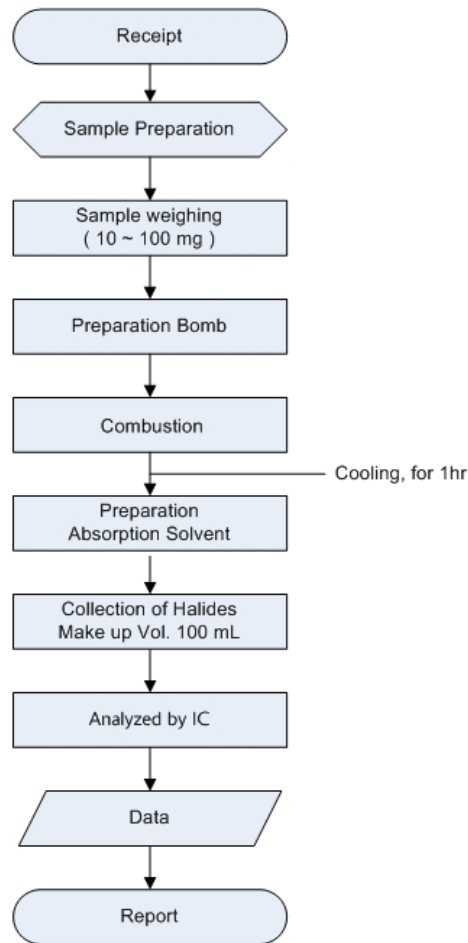
Report No. RT08R-8158

Page: 5 of 5  
Date: Mar. 17, 2008

Sample ID No. : RT08R-8158

Sample Description : Plastic pellet

## Flow Chart Of Digestion ( EN 14582 For Halogen )



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

Prepared by Eung Yong Lee, Chemist

Confirmed by Sang Chul Park, Senior Researcher

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

This Test Report is issued by the Company subject to its Terms and Conditions of Business printed overleaf. Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This Test Report shall not be reproduced, except in full, without prior written consent of the Company.

Intertek Testing Center

# Material Safety Data Sheet

Revised date Jan. 20, 2003

---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name : UENO LCP 6040GM  
Name of Company : UENO FINE CHEMICALS INDUSTRY,LTD.  
Section in Charge : CHEMICALS DIV. QUALITY ASSURANCE DEPT.  
Address : 2-4-8,KORAIBASHI,CHUO-KU OSAKA 541-8543  
Phone No. : 81-6-6203-6193  
Fax No. : 81-6-6222-2413  
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)-2709 ( base resin )  
CAS-No. : 146647-94-1 ( 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 : 320°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 $\mu$ m 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.



## TEST REPORT

REPORT NO. JP/2008/010302  
DATE: January 24, 2008  
PAGE: 1 OF 1

CLIENT : NIPPON MINING & METALS CO.,LTD. KURAMI WORKS  
SAMPLE DESCRIPTION : C5210R (NIPPON MINING & METALS CO.,LTD.)  
CLIENT REF.NO :  
TESTING DATE : 2008/01/11 TO 2008/01/21  
SAMPLE RECEIVED : 2008/01/11

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	24	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
<b>PBBs(Polybrominated biphenyls)</b>					
Monobromobiphenyl	ppm	N.D.			10
Dibromobiphenyl	ppm	N.D.			10
Tribromobiphenyl	ppm	N.D.			10
Tetrabromobiphenyl	ppm	N.D.			10
Pentabromobiphenyl	ppm	N.D.	EPA3540C/EPA3541/EPA3550C	GC/MS	10
Hexabromobiphenyl	ppm	N.D.			10
Heptabromobiphenyl	ppm	N.D.			10
Octabromobiphenyl	ppm	N.D.			10
Nonabromobiphenyl	ppm	N.D.			25
Decabromobiphenyl	ppm	N.D.			25
<b>PBDEs(Polybrominated diphenyl ethers)</b>					
Monobromodiphenyl ether	ppm	N.D.			10
Dibromodiphenyl ether	ppm	N.D.			10
Tribromodiphenyl ether	ppm	N.D.			10
Tetrabromodiphenyl ether	ppm	N.D.			10
Pentabromodiphenyl ether	ppm	N.D.	EPA3540C/EPA3541/EPA3550C	GC/MS	10
Hexabromodiphenyl ether	ppm	N.D.			10
Heptabromodiphenyl ether	ppm	N.D.			10
Octabromodiphenyl ether	ppm	N.D.			10
Nonabromodiphenyl ether	ppm	N.D.			25
Decabromodiphenyl ether	ppm	N.D.			25

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 802375

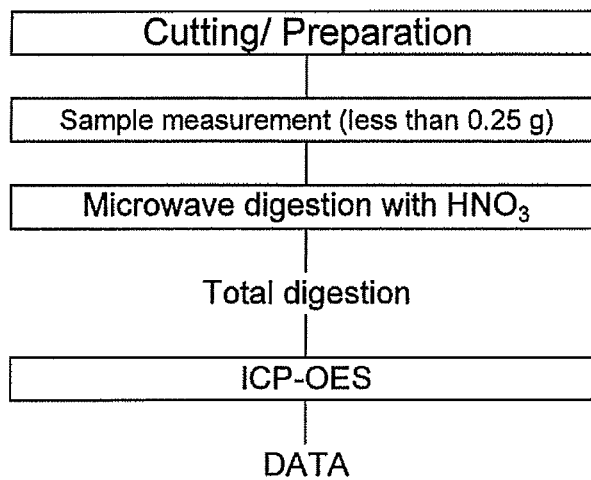
This Test Report is issued by the Company subject to its General Conditions of Service printed overleaf. Attention is drawn to the limitations of liability, indemnification, and jurisdictional issues defined therein. The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full, without prior written permission of the Company.

弊社発行のこの検査報告書は、裏面に明記されたサービスに関する一般的条件に則して発行されます。そこに明記してある弊社の負うべき債務・補償範囲及び司法管轄の項目にご注意下さい。この検査報告書に記載された検査結果は、特別に明記されていない限り、検査したサンプルに関してのみの検査結果であります。



REPORT NO. JP/2008/010302

**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 802376

This Test Report is issued by the Company subject to its General Conditions of Service printed overleaf. Attention is drawn to the limitations of liability, indemnification, and Jurisdictional issues defined therein. The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full, without prior written permission of the Company.

弊社発行のこの検査報告書は、裏面に明記されたサービスに関する一般的条件に則して発行されます。そこに明記してある弊社の負うべき債務・補償範囲及び司法管轄の項目にご注意下さい。この検査報告書に記載された検査結果は、特別に明記されていない限り、検査したサンプルに関してのみの検査結果であります。また、この非開示の複製には、その検査結果の内容に関して、弊社からの立派による事前許可無しには複製を禁じます。

To. HIROSE ELECTRIC CO., LTD.

**MATERIAL SAFETY DATA SHEET**

MSDS FILE No. (KURAMI WORKS) : 05-1114

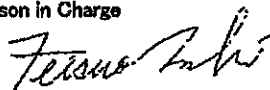
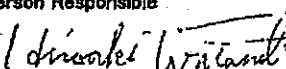
(based on Form OSHA-174)

IDENTITY ( AS Used on Label and List )

Product Class : Phosphor Bronze Strip  
 Trade Name : JIS H3130 C5210R (Equivalent to ASTM B103 C52100)  
 CAS No. : Copper: 7440-50-8, Tin: 7440-31-5, Phosphor: 7723-14-0  
 Chemical Composition

	Content (wt-%)	CAS No.
Tin (Sn)	7.0~9.0	7440-31-5
Phosphor (P)	0.03~0.35	7723-14-0
Copper (Cu)	Balance	7440-50-8
Sn+P+Cu	99.7≤	-

**Section I**

Manufacturer's Name <b>NIKKO METAL MANUFACTURING CO., LTD.          KURAMI WORKS</b>	Date Prepared <b>January 27th, 2005</b>
Address <b>3 Kurami Samukawa-cho          Kouza-gun Kanagawa prefecture          253-0101 JAPAN</b>	Signature of Person in Charge  <b>MAKI, Tetsuo</b> Senior Technical Supervisor, Quality Assurance
Telephone Number for Information (Quality Assurance) <b>+81-467-75-7285</b>	Signature of Person Responsible  <b>WATANABE, Hiroaki</b> Manager, Quality Assurance Section
Facsimile Number for Information (Quality Assurance) <b>+81-467-74-6971</b>	

**Section II Hazardous Ingredients / Identity Information**

Hazardous Components (Specific Chemical Identity : Names OSHA PeI 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 )	8.80
Vapor Pressure (mmHg)	N/A	Melting Point	1025 deg. centi. for C5210 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.						

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 Aggravated by Exposure N/A

Emergency and First Aid Procedures

N/A

### Section VII Precautions for State Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

N/A

Waste Disposal Method

Collect scrap for remelting.

Precautions to Be Taken in Handling and storing

#### For Handling

- 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.

#### For Storing

- 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 / Hygienic Practices

None

Influence to environments

Fish on toxicity : TLm 48 hr. on CuSO<sub>4</sub>

Salmogaideneri : 0.038 ~ 0.8 ppm

Oryzias Latipes : 2.1 ~ 24ppm