Test Report (SVHC)

SYNCMOS TECHNOLOGIES INTERNATIONAL, INC.
6F, NO. 10-2, LI HSIN FIRST ROAD, SCIENCE-BASED INDUSTRIAL PARK,
HSINCHU, TAIWAN, R. O. C.

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	Pb (LEAD) FREE MCU / FLASH IC (44 PLCC)
Sample Receiving Date	:	2010/03/19
Testing Period	:	2010/03/19 TO 2010/03/26

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Test Requested	:	29 Substances of Very High Concern (SVHC) screening in addition of Acrylamide by specific client's request. SVHC candidate list of the second version based on the publication by European Chemicals Agency (ECHA) on 2010 January 13, regarding Regulation (EC) No 1907/2006 concerning the REACH.
Test Method	:	Please refer to next page(s).
Test Result(s)	:	Please refer to next page(s).
Summary	:	According to the specified scope and analytical technique, concentrations of all SVHC are <0.1% in the submitted sample(s).

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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Test Sample : IC

Test Method : SGS In-House method-RSTS-EE-SVHC-002. Analyzed by ICP-AES, UV-VIS, GC/MS, LC/MS and GC/FPD.

Remark:

1. The chemical analysis of 29 SVHC is performed by means of currently available analytical techniques against the list published by ECHA on 2010 January 13. This list is under evaluation by ECHA and may subject to change in the future.

   Refer to: http://echa.europa.eu/doc/press/pr_10_01_candidate_list_20100113.pdf
2. In accordance with Regulation (EC) No 1907/2006, any producer or importer of articles shall notify ECHA, in accordance with paragraph 2 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance is present in those articles above a concentration of 0.1% weight by weight (w/w).
3. Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.
4. If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

Test Result(s)

Substance Name	Unit	Concentration of Article	RL	Classification
Anthracene (CAS No.: 000120-12-7)	%	n.d.	0.005	PBT
4,4' - Diaminodiphenylmethane (CAS No.: 000101-77-9)	%	n.d.	0.005	Carcinogen Category 2
DBP (Dibutyl phthalate) (CAS No.: 000084-74-2)	%	n.d.	0.005	Toxic to Reproduction Category 2
BBP (Benzyl butyl phthalate) (CAS No.: 000085-68-7)	%	n.d.	0.005	Toxic to Reproduction Category 2
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 000117-81-7)	%	n.d.	0.005	Toxic to Reproduction Category 2
5-tert-butyl-2,4,6-trinitro- m-xylene (Musk Xylene) (CAS No.: 000081-15-2)	%	n.d.	0.005	vPvB

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Substance Name	Unit	Concentration of Article	RL	Classification
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β- HBCDD, γ- HBCDD) (CAS No.: 025637-99-4 and 003194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	%	n.d.	0.005	PBT
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 085535-84-8)	%	n.d.	0.01	PBT
Bis(tributyltin)oxide*** (CAS No.: 000056-35-9)	%	n.d.	-	PBT
Cobalt dichloride (CAS No.: 007646-79-9)	%	n.d.	0.05	Carcinogen Category 2
Diarsenic pentaoxide*** (CAS No.: 001303-28-2)	%	n.d.	-	Carcinogen Category 1
Diarsenic trioxide*** (CAS No.: 001327-53-3)	%	n.d.	-	Carcinogen Category 1
Triethyl arsenate***(CAS No.: 015606-95-8)	%	n.d.	-	Carcinogen Category 1
Lead hydrogen arsenate*** (CAS No.: 007784-40-9)	%	n.d.	-	Carcinogen Category 1; Toxic to Reproduction Category 1
Sodium dichromate*** (CAS No.: 010588-01-9(*))	%	n.d.	-	Carcinogen Category 2; Mutagen Category 2; Toxic to Reproduction Category 2
Anthracene oil (CAS No.: 090640-80-5) (**)	%	n.d.	0.05	PBT
Anthracene oil, anthracene paste, distn. Lights (CAS No.: 091995-17-4) (**)	%	n.d.	0.05	PBT
Anthracene oil, anthracene paste, anthracene fraction (CAS No.: 091995-15-2) (**)	%	n.d.	0.05	PBT
Anthracene oil, anthracene-low (CAS No.: 090640-82-7) (**)	%	n.d.	0.05	PBT

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Substance Name	Unit	Concentration of Article	RL	Classification
Anthracene oil, anthracene paste (CAS No.: 090640-81-6) (**)	%	n.d.	0.05	PBT
Pitch, coal tar, high-temp. (CAS No.: 065996-93-2) (**)	%	n.d.	0.05	PBT
Aluminiosilicate, Refractory Ceramic Fibres	%	n.d.	0.05	Carcinogen Category 2
Zirconia Aluminosilicate, Refractory Ceramic Fibres	%	n.d.	0.05	Carcinogen Category 2
DIBP (Di-isobutyl phthalate) (CAS No.: 000084-69-5)	%	n.d.	0.005	Toxic to Reproduction Category 2
2,4-Dinitrotoluene (CAS No.: 000121-14-2)	%	n.d.	0.005	Carcinogen Category 2
Tris(2-chloroethyl) phosphate (TCEP) (CAS No.: 000115-96-8)	%	n.d.	0.005	Toxic to Reproduction Category 2
Lead chromate (CAS No.: 007758-97-6)	%	n.d.	0.01	Carcinogen Category 2; Toxic to Reproduction Category 1
Lead chromate molybdate sulphate red (C.I. Pigment Red 104) (CAS No.: 012656-85-8)	%	n.d.	0.01	Carcinogen Category 2; Toxic to Reproduction Category 1
Lead sulfochromate yellow (C.I. Pigment Yellow 34) (CAS No.: 001344-37-2)	%	n.d.	0.01	Carcinogen Category 2; Toxic to Reproduction Category 1

Additional screening by client's request outside the scope of SVHC as published by ECHA on 2010 January 13:

Substance Name	Unit	Concentration of Article	RL	Classification
Acrylamide (CAS No.: 000079-06-1)	%	n.d.	0.005	Carcinogen Category 2; Mutagen Category 2

Note：

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. n.d.= not detected = below Reporting Limit
3. RL = Reporting Limit
4. Definition of classification is listed in Appendix A of this report in accordance with 67/548/EEC and Regulation (EC) No 1907/2006.

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5. Please refer to Appendix C to find the concentration and the weight of each tested unit.
6. " - " = Not Regulated
7. (**): The concentrations of above-mentioned mixtures are evaluated per the gained composition rate between the selected marks and the mixtures.
8. (*): conc. of Sodium dichromate dihydrate (CAS No.: 007789-12-0) = conc. of sodium dichromate × 1.1374
9. ***: The substance was calculated by the test results of Tributyl Tin or element (Ex. Arsenic, Lead or Cr(VI) respectively).

AX = A × F

AX	A	F
Diarsenic pentaoxide	Arsenic	1.5339
Diarsenic trioxide		1.3203
Triethyl arsenate		3.0179
Lead hydrogen arsenate		4.6332
	Lead	1.6753
Sodium dichromate	Hexavalent Chromium Cr(VI)	2.5192
Bis(tributyltin)oxide	Tributyl Tin (TBT)	1.0276

Regarding lead hydrogen arsenate lead and arsenic are tested and used for the calculation of the separated concentration of lead hydrogen arsenate. The final concentration of lead hydrogen arsenate for the report uses the minimum value of above-mentioned two concentration of lead hydrogen arsenate.

The test result is given as:

Substance Name	Unit	Concentration of Article	RL
Tributyl Tin (TBT)	%	n.d.	0.005
Arsenic (As)	%	n.d.	0.005
Lead (Pb)	%	n.d.	0.005
Hexavalent Chromium Cr(VI)	%	n.d.	0.005

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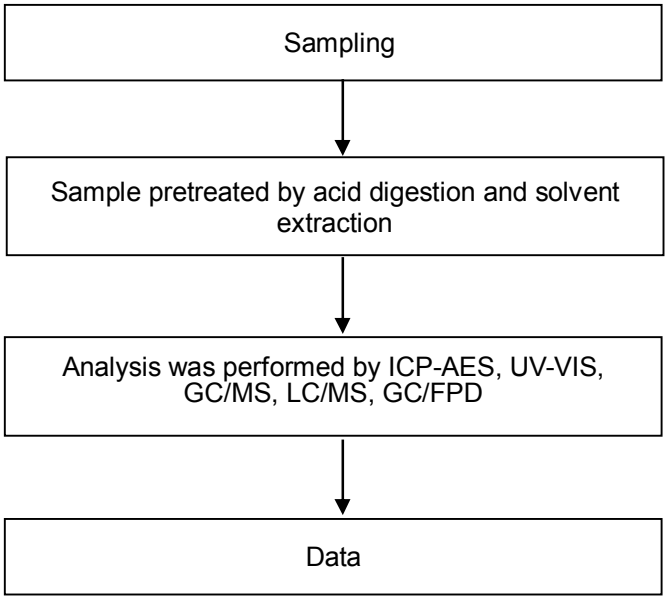
Analytical flow chart of SVHC

1) Name of the person who made measurement: Roman Wong / Lydia Fu / Stacy Chou / Climbgreat Yang
2) Name of the person in charge of measurement: Chenyu Kung



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【Appendix A】

Classification	Definition under 67/548/EEC and Regulation (EC) No 1907/2006
Carcinogen Category 1:	Substances known to be carcinogenic to man. There is sufficient evidence to establish a causal association between human exposure to a substance and the development of cancer.
Carcinogen Category 2:	Substances which should be regarded as if they are carcinogenic to man. There is sufficient evidence to provide a strong presumption that human exposure to a substance may result in the development of cancer. Generally on the basis of: - appropriate long-term animal studies - other relevant information.
Mutagen Category 1:	Substances known to be mutagenic to man. There is sufficient evidence to establish a causal association between human exposure to a substance and heritable genetic damage.
Mutagen Category 2:	Substances which should be regarded as if they are mutagenic to man. There is sufficient evidence to provide a strong presumption that human exposure to the substance may result in the development of heritable genetic damage, generally on the basis of: - appropriate animal studies, - other relevant information.
Toxic to Reproduction Category 1:	Substances known to impair fertility in humans. There is sufficient evidence to establish a causal relationship between human exposure to the substance and impaired fertility. Substances known to cause developmental toxicity in humans. There is sufficient evidence to establish a causal relationship between human exposure to the substance and subsequent developmental toxic effects in the progeny.
Toxic to Reproduction Category 2:	Substances which should be regarded as if they impair fertility in humans. There is sufficient evidence to provide a strong presumption that human exposure to the substance may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or, evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary nonspecific consequence of the other toxic effects, - other relevant information. Substances which should be regarded as if they cause developmental toxicity to humans. There is sufficient evidence to provide a strong presumption that human exposure to the substance may result in developmental toxicity, generally on the basis of: - clear results in appropriate animal studies where effects have been observed in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of the other toxic effects, - other relevant information.
PBT & vPvB:	Substances which are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) pose a particular challenge to the chemicals safety management. For these substances a “safe” concentration in the environment cannot be established with sufficient reliability.

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【Appendix B】

SVHC SURVEY FORM	
Company Name	SYNCMOS TECHNOLOGIES INTERNATIONAL, INC.
Product name	Pb (LEAD) FREE MCU / FLASH IC (44 PLCC)
Product/Sampling weight	2.6 g
Report No.	CR/2010/30346A

Substance identification

Substance name	Concentration of Article (%)	weight (mg)	providing information about safe use according to Article 33 is necessary
Anthracene	n.d.	N/A	No
4,4' - Diaminodiphenylmethane	n.d.	N/A	No
DBP (Dibutyl phthalate)	n.d.	N/A	No
BBP (Benzyl butyl phthalate)	n.d.	N/A	No
DEHP (Di- (2-ethylhexyl) phthalate)	n.d.	N/A	No
5-tert-butyl-2,4,6-trinitro- m-xylene (Musk Xylene)	n.d.	N/A	No
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)	n.d.	N/A	No
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	n.d.	N/A	No
Bis(tributyltin)oxide	n.d.	N/A	No
Cobalt dichloride	n.d.	N/A	No
Diarsenic pentaoxide	n.d.	N/A	No
Diarsenic trioxide	n.d.	N/A	No
Triethyl arsenate	n.d.	N/A	No
Lead hydrogen arsenate	n.d.	N/A	No
Sodium dichromate	n.d.	N/A	No
Anthracene oil	n.d.	N/A	No
Anthracene oil, anthracene paste, distn. Lights	n.d.	N/A	No
Anthracene oil, anthracene paste, anthracene fraction	n.d.	N/A	No
Anthracene oil, anthracene-low	n.d.	N/A	No
Anthracene oil, anthracene paste	n.d.	N/A	No
Pitch, coal tar, high-temp.	n.d.	N/A	No
Aluminiosilicate, Refractory Ceramic Fibres	n.d.	N/A	No
Zirconia Aluminosilicate, Refractory Ceramic Fibres	n.d.	N/A	No

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Substance name	Concentration of Article (%)	weight (mg)	providing information about safe use according to Article 33 is necessary
DIBP (Di-isobutyl phthalate)	n.d.	N/A	No
2,4-Dinitrotoluene	n.d.	N/A	No
Tris(2-chloroethyl) phosphate (TCEP)	n.d.	N/A	No
Lead chromate	n.d.	N/A	No
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	n.d.	N/A	No
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	n.d.	N/A	No

Note: N/A = Non-Available

【Appendix C】

Tested Unit No.1 : IC (Weight: 2.6g)

Substance Name	Concentration (%)	RL	Sample picutre
Anthracene	n.d.	0.005	
4,4' - Diaminodiphenylmethane	n.d.	0.005	
DBP (Dibutyl phthalate)	n.d.	0.005	
BBP (Benzyl butyl phthalate)	n.d.	0.005	
DEHP (Di- (2-ethylhexyl) phthalate)	n.d.	0.005	
5-tert-butyl-2,4,6-trinitro- m-xylene (Musk Xylene)	n.d.	0.005	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)	n.d.	0.005	
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	n.d.	0.01	
Tributyl Tin (TBT)	n.d.	0.005	
Bis(tributyltin)oxide	n.d.	-	
Cobalt dichloride	n.d.	0.05	
Arsenic (As)	n.d.	0.005	
Diarsenic pentaoxide	n.d.	-	
Diarsenic trioxide	n.d.	-	

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Substance Name	Concentration (%)	RL	Sample picutre
Triethyl arsenate	n.d.	-	
Lead (Pb)	n.d.	0.005	
Lead hydrogen arsenate	n.d.	-	
Hexavalent Chromium Cr(VI)	n.d.	0.005	
Sodium dichromate	n.d.	-	
Anthracene oil	n.d.	0.05	
Anthracene oil, anthracene paste, distn. Lights	n.d.	0.05	
Anthracene oil, anthracene paste, anthracene fraction	n.d.	0.05	
Anthracene oil, anthracene-low	n.d.	0.05	
Anthracene oil, anthracene paste	n.d.	0.05	
Pitch, coal tar, high-temp.	n.d.	0.05	
Aluminiosilicate, Refractory Ceramic Fibres	n.d.	0.05	
Zirconia Aluminosilicate, Refractory Ceramic Fibres	n.d.	0.05	
DIBP (Di-isobutyl phthalate)	n.d.	0.005	
2,4-Dinitrotoluene	n.d.	0.005	
Tris(2-chloroethyl) phosphate (TCEP)	n.d.	0.005	
Lead chromate	n.d.	0.01	
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	n.d.	0.01	
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	n.d.	0.01	
Acrylamide	n.d.	0.005	

Note:

1. The average concentration of a whole article can be calculated per the following formula.

$$C_{Average\ of\ Article} = \frac{\sum_{i=n}(C_i * W_i)}{\sum_{i=n}(W_i)}$$

Ci : Concentration of a SVHC item in each tested unit

Wi: Weight of each tested unit

$C_{Average\ of\ Article}$: Average concentration of a whole article

** End of Report **