

To: KOREA JCC CO.,LTD

57-1 Hyunam-ri Buki-myun Cheongwon-gun Chungbuk Korea

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

Product Name	:	Coating Foil
Item/Part Name	:	Coating Foil
SGS File No.	:	AYAA11-04924
Received Date	:	February 10, 2011
Test Period	:	February 14, 2011 ~ February 17, 2011
Test Performed	:	SGS Testing Korea tested the sample(s) selected by applicant with following results
Test Requested	:	Forty-six (46) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before December 15, 2010 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).

SGS Testing Korea Co., Ltd.

Jeff Jag

Jeff Jang / Technical Mgr

Timothy Jeon Cindy park Jinhee Kim Sophia Kim /Testing Person

This document is issued by the Company subject to is General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.comterms_and_conditions.htm</u> and, for electronic formal documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.comterms_edccument.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction is used defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its lintervention only and within the limits of Clerefs retructions, if any. The Company's sole responsibility is to ta Clerefs in Structure to a transaction from exercising all their rights and obligations under the transaction document. This document does except in full, without prior written approval of the Company. Any unauthorized ateration, foreor yor faisfication of the content or appearance of this document is uniawul and denders may be prosecuted to the fulliest extent of the law. Unliess otherwise stated the results to shown in this test point radio to the sample(s) are retained for 160 days only.

 SGS Testing Korea Co.,Ltd.
 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080

 t +82 (0)31 4608 000 f +82 (0)31 4608 059 http://www.sgslab.co.kr.<u>www.kr.sgs.com/greenlab</u>



Test Method:

SGS In-House method-RSTS-SVHC-102-2, 3 and ZLS standard ZEK 01.2-08. Analyzed by ICP-OES, PLM, UV/VIS, LC/MS and GC/MS.

Remarks:

- The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA: These lists are under evaluation by ECHA and may subject to change in the future.
 Refer to: http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp
 Refer to: http://echa.europa.eu/news/pr/201012/pr 10 26 svhc candidate list 20101215 en.asp
- 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 in the Candidate List.
- 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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sas.com/terms and conditions.htm</u> and, for electronic format documents, subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sas.com/terms and conditions.htm</u> and, for electronic format documents, subject to its General Conditions of Electronic Documents at <u>www.sas.com/terms and conditions.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of the document is advised that information contained hereon reflects the Company's lindings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's being to the Company's of advised that information contained hereon reflects the Company's of advised that information, and within the limits approval of the Company. Any unauthorized atteration, forgery or faisification of the content or appearance of this document is unlawful and defenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report reformed for the sample(s) are retained for 180 days only.



Page 3 of 8

Test Result(s)

Substance Name	CAS number	EC number	Concentration (%)	Reporting Limit (%)	Classification
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	287-476-5	N.D.	0.05	PBT
Anthracene	120-12-7	204-371-1	N.D.	0.05	PBT
Benzyl butyl phthalate (BBP)	85-68-7	201-622-7	N.D.	0.05	Toxic to Reproduction Category 2
Bis (2-ethylhexylphthalate) (DEHP)	117-81-7	204-211-0	N.D.	0.05	Toxic to Reproduction Category 2
Bis(tributyltin)oxide*	56-35-9	200-268-0	N.D.	0.05	PBT
Cobalt dichloride*	7646-79-9	231-589-4	N.D.	0.005	Carcinogen Category 2
4,4Diaminodiphenylmethane	101-77-9	202-974-4	N.D.	0.05	Carcinogen Category 2
Diarsenic pentaoxide*	1303-28-2	215-116-9	N.D.	0.005	Carcinogen Category 1
Diarsenic trioxide*	1327-53-3	215-481-4	N.D.	0.005	Carcinogen Category 1
Dibutyl phthalate (DBP)	84-74-2	201-557-4	N.D.	0.05	Toxic to Reproduction Category 2
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ- HBCDD)	25637-99-4and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)	247-148-4 and 221-695- 9	N.D.	0.05	PBT
Lead hydrogen arsenate*	7784-40-9	232-064-2	N.D.	0.005	Carcinogen Category 1; Toxic to Reproduction Category 1
Sodium dichromate (Sodium dichromate, dehydrate)	10588-01-9 (7789-12-0)	234-190-3	N.D.	0.005	Carcinogen Category 2; Mutagen Category 2; Toxic to Reproduction Category 2
5-tert-butyl-2,4,6-trinitro-m- xylene (musk xylene)	81-15-2	201-329-4	N.D.	0.05	vPvB
Triethyl arsenate*	15606-95-8	427-700-2	N.D.	0.005	Carcinogen Category 1

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms a-document.ttm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction is used defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Clerifs instructions, if any. The Company's object responsibility is to the Scient and this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits approval of the Company. Any unauthorized ateration, foreor yor faisification of the content or appearance of this document is unlawul and denders may be prosecuted to the fulliest extent of the law. Unless otherwise stated the results shown in this test toport refer only to the sample(s) are retained for 100 days only.

 SGS Testing Korea Co.,Ltd.
 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080

 t +82 (0)31 4608 000 f +82 (0)31 4608 059 http://www.sgslab.co.kr.www.kr.sgs.com/greenlab



Page 4 of 8

Substance Name	CAS number	EC number	Concentration (%)	Reporting Limit (%)	Classification
Di-isobutyl phthalate(DIBP)	84-69-5	201-553-2	N.D.	0.05	Toxic to Reproduction Category 2
2,4-Dinitrotoluene	121-14-2	204-450-0	N.D.	0.05	Carcinogen Category 2
Tris(2-chloroethyl) phosphate	115-96-8	204-118-5	N.D.	0.05	Toxic to Reproduction Category 2
Anthracene oil	90640-80-5	292-602-7	N.D.	0.05	PBT; vPvB Carcinogen Category 2
Anthracene oil, anthracene paste; distn. Lights	91995-17-4	295-278-5	N.D.	0.05	PBT; vPvB; Carcinogen Category 2; Mutagen Category 2
Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	295-275-9	N.D.	0.05	PBT; vPvB; Carcinogen Category 2; Mutagen Category 2
Anthracene oil, anthracene-low	90640-82-7	292-604-8	N.D.	0.05	PBT; vPvB; Carcinogen Category 2; Mutagen Category 2
Anthracene oil, anthracene paste	90640-81-6	292-603-2	N.D.	0.05	PBT; vPvB; Carcinogen Category 2; Mutagen Category 2
Coal tar pitch, high temperature	65996-93-2	266-028-2	N.D.	0.05	PBT; vPvB; Carcinogen Category 2
Aluminosilicate, Refractory Ceramic Fibres*	-	650-017-00-8 (Index no.)	N.D.	0.005	Carcinogen Category 2
Zirconia Aluminosilicate, Refractory Ceramic Fibres*	-	650-017-00-8 (Index no.)	N.D.	0.005	Carcinogen Category 2
Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	215-693-7	N.D.	0.005	Carcinogen Category 2; Toxic to Reproduction Category 1
Lead chromate molybdate sulfate red (C.I. Pigment Red 104)*	12656-85-8	235-759-9	N.D.	0.005	Carcinogen Category 2; Toxic to Reproduction Category 1
Lead chromate*	7758-97-6	231-846-0	N.D.	0.005	Carcinogen Category 2; Toxic to Reproduction Category 1
Acrylamide	79-06-01	201-173-7	N.D.	0.05	Carcinogen Category 2; Mutagen Category 2

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms a-document.ttm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction is used defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Clerifs instructions, if any. The Company's object responsibility is to the Scient and this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits approval of the Company. Any unauthorized ateration, foreor yor faisification of the content or appearance of this document is unlawul and denders may be prosecuted to the fulliest extent of the law. Unless otherwise stated the results shown in this test toport refer only to the sample(s) are retained for 100 days only.

 SGS Testing Korea Co.,Ltd.
 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080

 t +82 (0)31 4608 000 f +82 (0)31 4608 059 http://www.sgslab.co.kr.www.kr.sgs.com/greenlab



Page 5 of 8

Substance Name	CAS number	EC number	Concentration (%)	Reporting Limit (%)	Classification
Boric acid* [#]	10043-35-3 11113-50-1	233-139-2 234-343-4	N.D.	0.005	Toxic to Reproduction Category 2
Disodium tetraborate, anhydrous* [#]	1330-43-4 12179-04-3 1303-96-4	215-540-4	N.D.	0.005	Toxic to Reproduction Category 2
Tetraboron disodium heptaoxide, hydrate* [#]	12267-73-1	235-541-3	N.D.	0.005	Toxic to Reproduction Category 2
Trichloroethylene	79-01-6	201-167-4	N.D.	0.05	Carcinogen Category 2
Sodium chromate [*]	7775-11-3	231-889-5	N.D.	0.005	Carcinogen Category 2; Mutagen Category 2; Toxic to Reproduction Category 2
Ammonium dichromate	7789-09-5	232-143-1	N.D.	0.005	Carcinogen Category 2; Mutagen Category 2; Toxic to Reproduction Category 2
Potassium dichromate [*]	7778-50-9	231-906-6	N.D.	0.005	Carcinogen Category 2; Mutagen Category 2; Toxic to Reproduction Category 2
Potassium chromate [*]	7789-00-6	232-140-5	N.D.	0.005	Carcinogen Category 2; Mutagen Category 2

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms a-document.ttm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction is used defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Clerifs instructions, if any. The Company's object responsibility is to the Scient and this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits approval of the Company. Any unauthorized ateration, foreor yor faisification of the content or appearance of this document is unlawul and denders may be prosecuted to the fulliest extent of the law. Unless otherwise stated the results shown in this test toport refer only to the sample(s) are retained for 100 days only.

 SGS Testing Korea Co.,Ltd.
 322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080

 t +82 (0)31 4608 000 f +82 (0)31 4608 059 http://www.sgslab.co.kr.www.kr.sgs.com/greenlab



Concentration Reporting **CAS** number **EC** number Classification Substance Name (%) Limit (%) Carcinogen Category 2: Cobalt(II) sulphate # 10124-43-3 233-334-2 N.D. 0.005 Toxic to Reproduction Category 2 Carcinogen Category 2; Cobalt(II) dinitrate # 10141-05-6 233-402-1 N.D. 0.005 Toxic to Reproduction Category 2 Carcinogen Category 2; Cobalt(II) carbonate[#] 0.005 Toxic to Reproduction 513-79-1 208-169-4 N.D. Category 2 Carcinogen Category 2; Cobalt(II) diacetate # Toxic to Reproduction 71-48-7 200-755-8 N.D. 0.005 Category 2 Toxic to Reproduction 2-Methoxyethanol 109-86-4 203-713-7 N.D. 0.05 Category 2 Toxic to Reproduction N.D. 2-Ethoxyethanol 110-80-5 203-804-1 0.05 Category 2 Carcinogen Category 1; Chromium trioxide 1333-82-0 215-607-8 N.D. 0.005 Mutagen Category 2 Acids generated from chromium trioxide and their oligomers: Chromic acid 7738-94-5 231-801-5 Carcinogen N.D. 0.005 Dichromic acid 13530-68-2 236-881-5 Category 2 Oligomers of chromic acid and dichromic acid

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sqs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions of listification of listification and jurisdicion issued defined therein. Any holder of this document is advised that information contained hereon reflects the Company's Indings at the time of its intervention only and within the limits of Clent's instructions, if any. The Company's olicitos, the Company's fordings at the lime of its Clent and this document does not exocerate parities to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or faisification of the content or appearance of this document is unlawful and direnders may be prosecuted to the fullest extent of the law.

322, The O valley, 555-9, Hogye-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-080 t +82 (0)31 4608 000 f +82 (0)31 4608 059 http://www.sgslab.co.kr.<u>www.kr.sgs.com/greenlab</u>

Page 6 of 8



Note:

- 1. RL = Reporting Limit
- 2. ND = Not detected (lower than RL)

NA = Not applicable for respective material type.

The submitted sample was found to contain significant amount of specific element(s) of SVHC. Upon further test verification and also information provided from client, the possibility that the element(s) content originate from SVHC is very unlikely, even though their presence cannot be exclude entirely. It may be assumed that the detected element(s) have a non-SVHC source.

3.. *.The test result is based on the calculation of selected element(s) / marker(s) and to the worst-case scenario. For detail information, please refer to the SGS REACH website: <u>www.reach.sgs.com/substance-of-very-high-concern-analysis-information-page.htm</u>

[#] Calculated concentration of boric acid, disodium tetraborate, anhydrous and tetraboron disodium heptaoxide, hydrate are based on the total/water extractive boron by ICP-OES.Calculated concentrations of cobalt(II) sulphate, cobalt(II) dinitrate, cobalt(II) carbonate, cobalt(II) diacetate are based on the total/water extractive cobalt by ICP-OES.

Calculated concentrations of chromium trioxide, chromic acid and dichromic acid are based on the identified chromium(VI) by UV-Vis.

- 4. Test result of anthracene oil and coal tar are calculated as per selected identifiers of the SVHC. The value is reported in aggregate per anthracene oil or coal tar and based on the worst-case scenario.
- 5. 0.1% (w/w) = 1,000 ppm = 1,000 mg/kg



*** End of Report ***

This document is issued by the Company subject to its General Conditions of Service printed overleal, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdicion issue defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any, The Economy's of the company's findings at the time of the intervention only and within the limits of Client's instructions, if any, The Economy's of the Economy's of the content or appearance of this document is unlawful and differed rs may be prosecuted to the fullest extent of the law.



Appendix A

Classification Definition under 67/548/EEC and Regulation (EC) No 1907/2006 Substances known to be carcinogenic to man. There is sufficient evidence to establish a causal Carcinogen association between human exposure to a substance and the development of cancer. Category 1: Carcinogen Substances which should be regarded as if they are carcinogenic to man. There is sufficient Category 2: 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 Substances known to be mutagenic to man. There is sufficient evidence to establish a causal Category 1: association between human exposure to a substance and heritable genetic damage. Substances which should be regarded as if they are mutagenic to man. There is sufficient Mutagen evidence to provide a strong presumption that human exposure to the substance may result in the Category 2: development of heritable genetic damage, generally on the basis of: - appropriate animal studies, - other relevant information. Toxic to Substances known to impair fertility in humans. There is sufficient evidence to establish a causal Reproduction relationship between human exposure to the substance and impaired fertility. Substances known to cause developmental toxicity in humans. There is sufficient evidence to Category 1: establish a causal relationship between human exposure to the substance and subsequent developmental toxic effects in the progeny. Toxic to Substances which should be regarded as if they impair fertility in humans. There is sufficient Reproduction evidence to provide a strong presumption that human exposure to the substance may result in Category 2: 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

This document is issued by the Company subject to its General Conditions of Service printed overleal, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms</u> and <u>conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions of liability, indemnification and jurisdiction issue defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Clenic structures at the company's electronic Documents, any note a transaction form overcising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or faisification is the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

reliability.