

**Test Report No.** Date: 5-Sep-2011 2077660 Page 1 of 7

Client: HI-GRIMM ENVIRONMENTAL AND RESEARCH CO.,LTD

111 Thailand Science Park, Incubator Wing Bldg. Room310, 3rd Floor Paholyothin Rd.

Klong Neung, Klong Luang Pathumthani 12120 Thailand

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

Sample Description

: KEEEN Part Cleaner (Bioremediation Agent)

Sample No.

: 2135673

Sample Condition

: As per attached photograph

Manufacturer/Vendor

: Hi-Grimm Environmental and Research

Sample Receiving Date : 30-Aug-2011

**Testing Period** 

: 30-Aug-2011 to 01-Sep-2011

**Test Requested** 

: In accordance with the ELV Directive 2000/53/EC and its amendment directives

**Test Method** 

: (1) With reference to EPA Method 3052 for Lead Content Analysis was performed by

ICP-OES.

- (2) With reference to EPA Method 3052 for Cadmium Content Analysis was performed by ICP-OES.
- (3) With reference to EPA Method 3052 for Mercury Content. Analysis was

performed by ICP-OES.

(4) With reference to EPA Method 3060A & 7196A for Hexavalent Chromium.

Analysis was performed by UV/Vis Spectrometry.

(5) With reference to USEPA 3540C for PBB/PBDE content. Analysis was performed

by GC/MS.

**Test Results** 

: Please refer to next page.

Signed for and on behalf of SGS (Thailand) Limited

Pornpana Lirathpong **Hardlines Testing Manager** 

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Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result (1)	MDL	ELV Limit
Lead (Pb)	(1)	n.d.	2	1000
Cadmium (Cd)	(2)	n.d.	2	100
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium (CrVI)	(4)	n.d.	2	1000
sum of PBBs	(5)	n.d.	-	-
Monobromobiphenyl		n.d.	5	-
Dibromobiphenyl		n.d.	5	-
Tribromobiphenyl		n.d.	5	-
Tetrabromobiphenyl		n.d.	5	-
Pentabromobiphenyl		n.d.	5	-
Hexabromobiphenyl		n.d.	5	-
Heptabromobiphenyl		n.d.	5	-
Octabromobiphenyl		n.d.	5	-
Nonabromobiphenyl		n.d.	5	-
Decabromobiphenyl		n.d.	5	-

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Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result (1)	MDL	ELV Limit
Sum of PBDEs	(5)	n.d.	-	-
Monobromodiphenyl ether		n.d.	5	-
Dibromodiphenyl ether		n.d.	5	-
Tribromodiphenyl ether		n.d.	5	-
Tetrabromodiphenyl ether		n.d.	5	-
Pentabromodiphenyl ether		n.d.	5	-
Hexabromodiphenyl ether		n.d.	5	-
Heptabromodiphenyl ether		n.d.	5	-
Octabromodiphenyl ether		n.d.	5	-
Nonabromodiphenyl ether		n.d.	5	-
Decabromodiphenyl ether		n.d.	5	-

Test Part Description Result (1) clear liquid

## Note:

(1) mg/kg = ppm

(2) The results shown are based on the total weight of wet sample

(3) n.d. = Not Detected

(4) MDL = Method Detection Limit

(5) "-" = Not regulated

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Flow chart of digestion (EPA 3052 for Pb, Cd, Hg) +----+ | Cutting/Preparation | +----+ | Sample measurement | | MiCrowave digestion with HNO3 + HF| | Filtration | No residue |Residue | Ashing with H2SO4 | | Add HNO3 | +----+ - 1 No residue | ICP-OES |

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

Operator : Siam Polarwut

Section Chief: Laddawan Uranpitr

| DATA |

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Operator : Siam Polarwut

Section Chief: Laddawan Uranpitr

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Flow chart of digestion (EPA 3060A, 7196A for Cr(VI))

+-------+
| Cutting/Preparation |
+------+
| Sample measurement |
+------+
| Add digestion solution (NaOH+Na2CO3) |
+------+
| Add MgC12 and phosphate buffer |
+------+
| add HNO3 |
+-----+
| Colorimetrically |
+------+
| UV-Spectrophotometer |
+------+
| DATA |
+-----+
| DATA |
+-----+

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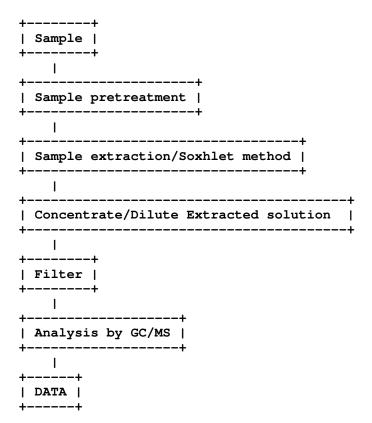


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Flow chart of PBBs/PBDEs



Operator : Rattaya Khantama

Section Chief: Waranchote Pananuraksa

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## SAMPLE/ATTACHMENT PICTURE



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