

## Test Report

No. CTSSA/03211/12  
CTS Ref. CTSSA/12/0515/CSC

Date : 22/02/2012

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**CSC STEEL SDN BHD**  
**180, KAWASAN INDUSTRI AYER KEROH, AYER KEROH**  
**75450 MELAKA, MALAYSIA**

**The following merchandise was (were) submitted and identified by the client as:**

Sample Description : GI SGCC Z12, BMT 1.0mm (HP5611)  
Sample Receiving Date : 16/02/2012  
Testing Period : 16/02/2012 to 22/02/2012

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Test Requested : Selected test(s) as requested by client  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Analysts : Teh Pui Sean & Tay Siam Pine

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SENIOR LAB MANAGER

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Test results:

Test Part Description :

Sample Description : GI SGCC Z12, BMT 1.0mm (HP5611)

**RoHS Directive 2011/65/EU Annex II**

Test Item(s):	Unit	Test Method	Results	MDL
Cadmium(Cd)	mg/kg	With reference to EPA Method 3050B, and performed by ICP-OES	N.D.	2
Lead (Pb)	mg/kg	With reference to EPA Method 3050B, and performed by ICP-OES	N.D.	2
Mercury (Hg)	mg/kg	With reference to EPA Method 3052, and performed by ICP-OES	N.D.	2
Hexavalent Chromium (CrVI)	mg/kg	With reference to JIS H 8625, and performed by UV-VIS Spectrophotometry	424	2
<b>Sum of PBBs</b>	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	-
Monobromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Dibromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Tribromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Tetrabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Hexabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Pentabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Heptabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Octabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Nonabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Decabromobiphenyl	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5

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Sum of PBDEs	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	-
Monobromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Dibromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Tribromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Tetrabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Pentabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Hexabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Heptabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Octabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Nonabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5
Decabromodiphenyl ether	mg/kg	With reference to EPA Method 3540C/3550C, and performed by GC-MS	N.D.	5

- Note :
- (a) mg/kg = ppm ; (0.1wt% = 1000ppm)
  - (b) N.D. = Not Detected
  - (c) MDL = Method Detection Limit
  - (d) - = Not regulated
  - (e) Result Cr6+ based on plating weight given by client

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### Test Part Description :

Sample Description : GI SGCC Z12, BMT 1.0mm (HP5611)



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## 1. DETERMINATION OF HEXAVALENT CHROMIUM BY JIS H 8625

Sample Preparation  
↓  
Hot water extraction  
↓  
Add colour-developing reagent  
↓  
Let stand for 5-10 min  
↓  
Analyses by UV- Spectrophotometer (540 nm)

## 2. DETERMINATION OF CADMIUM CONTENT BY US EPA 3050B

Cut sample in small pieces  
↓  
Weight sample (1.0g) into digestion vessel  
↓  
Acid digestion (HCl and HNO<sub>3</sub>)  
↓  
"Totally Dissolved"  
↓  
Filtration  
↓  
Analyses by ICP

## 3. MICROWAVE ASSISTED ACID DIGESTION OF SILICEOUS AND ORGANICALLY BASED METRICES (US EPA 3052)

Cut sample in small pieces  
↓  
Weight sample (0.2-0.5g) into digestion vessel  
↓  
Acid digestion (HF and HNO<sub>3</sub>) – Microwave  
↓  
"Totally Dissolved"  
↓  
Filtration  
↓  
Analyses by ICP

## 4. DETERMINATION OF LEAD CONTENT BY US EPA 3050B

Cut sample in small pieces  
↓  
Weight sample (1.0g) into digestion vessel  
↓  
Acid digestion (HCl and HNO<sub>3</sub>)  
↓  
"Totally Dissolved"  
↓  
Filtration  
↓  
Analyses by ICP

## 5. DETERMINATION OF PBB/PBDE WITH GC-MS

Cut sample in small pieces  
↓  
Weight sample (0.5-4g) into extraction thimble  
↓  
Ultrasonic / Soxhlet Extraction with Toluene  
↓  
Filter through 0.45 um membrane filter  
↓  
Analyses by GC-MS (with appropriate dilution)

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

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