

## Test Report

No. CTSSA/03210/12  
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 Z22, BMT 0.7mm (HP4490)  
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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B.Sc.(HONS) AMIC  
SENIOR LAB MANAGER

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Test results:

Test Part Description :

Sample Description : GI SGCC Z22, BMT 0.7mm (HP4490)

**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 | 361     | 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 Z22, BMT 0.7mm (HP4490)



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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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