

**TEST REPORT**

**Report No:** AR-21-SV-029828-01  
**Customer:** CSC STEEL SDN. BHD.  
**Date of Issue:** 04/08/2021



**Batch No:** EUMYBM-00087483  
**Sample No:** 138-2021-07003228

**To:** CSC STEEL SDN. BHD.  
 180, Kawasan Industri Ayer Keroh,  
 Ayer Keroh,  
 75450 Melaka  
 MALAYSIA

**Attn:** Ms. Chee Sook Jin

**Date Sample Received:** 26/07/2021  
**Date of Testing:** 27/07/2021 to 30/07/2021

**The following sample was identified by the customer as :**

SAMPLE DESCRIPTION: REALZINC™ CR-FREE  
 SAMPLE ID: JW3486

**Objective (s):** Determination of Cadmium (Cd), Hexavalent Chromium (Cr6+), Lead (Pb), Mercury (Hg), Phthalates, Polybrominated Biphenyl (PBBs), Polybrominated Diphenyl Ether (PBDEs) with RoHS Directive 2011/65/EU and (EU) 2015/863 (amendment in Annex II)

**Conclusion :**

Test(s) Required	Compliance with Objective(s)
1. Cadmium (Cd), 2. Lead (Pb), 3. Mercury (Hg), 4. Hexavalent Chromium (Cr6+), 5. Sum Polybrominated Biphenyls (PBB), 6. Sum Polybrominated Diphenyl Ether (PBDE), 7. Benzyl butyl phthalate (BBP), 8. Bis(2-ethylhexyl)phthalate (DEHP), 9. Dibutyl phthalate (DBP), 10. Di-isobutyl phthalate (DiBP)	Comply

**Test Result(s):**

Analysis	Industrial Products Analysis	Unit	Result	LOQ	Test Method	Specification
SVK51	Cadmium (Cd)	mg/kg	<LOQ	1	IEC 62321-5	≤100mg/kg
SVL03	Lead (Pb)	mg/kg	<LOQ	10	IEC 62321-5	≤1000mg/kg
SVK82	Mercury (Hg)	mg/kg	<LOQ	5	IEC 62321-4	≤1000mg/kg
SVK66	Hexavalent Chromium (Cr6+)	-	negative	-	IEC 62321-7-1	≤1000mg/kg (Refer Note 2)
SVK16	<b>Polybrominated Biphenyl (PBBs)</b>				IEC 62321-6	
	Monobromobiphenyl	mg/kg	<LOQ	20		Refer Note 3
	Dibromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Tribromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Tetrabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Pentabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Hexabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Heptabromobiphenyl	mg/kg	<LOQ	20		Refer Note 3
	Octabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Nonabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Decabromo biphenyls	mg/kg	<LOQ	20		Refer Note 3
	Sum Polybrominated Biphenyls (PBB)	mg/kg	<LOQ	20		≤1000mg/kg
SVK17	<b>Polybrominated Diphenyl Ether (PBDEs)</b>				IEC 62321-6	
	Monobromodiphenyl ether	mg/kg	<LOQ	20		Refer Note 3

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Analysis	Industrial Products Analysis	Unit	Result	LOQ	Test Method	Specification
	Dibromodiphenylether	mg/kg	<LOQ	20		Refer Note 3
	Tribromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Tetrabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Pentabromodiphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Hexabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Heptabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Octabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Nonabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Decabromo diphenyl ethers	mg/kg	<LOQ	20		Refer Note 3
	Sum Polybrominated Diphenyl Ether (PBDE)	mg/kg	<LOQ	20		≤1000mg/kg
SVV1Q	<b>Phthalates</b>				IEC 62321-8	
	Benzyl butyl phthalate (BBP)	% (w/w)	<LOQ	0.02		≤0.1%
	Bis(2-ethylhexyl)phthalate (DEHP)	% (w/w)	<LOQ	0.02		≤0.1%
	Dibutyl phthalate (DBP)	% (w/w)	<LOQ	0.02		≤0.1%
	Di-isobutyl phthalate (DiBP)	% (w/w)	<LOQ	0.02		≤0.1%

**Specification Note**

- RoHS Directive 2011/65/EU and (EU) 2015/863 (amendment in Annex II)
- Expression result for Hexavalent Chromium
  - Concentration of Hexavalent chromium ( $<0.10 \mu\text{g}/\text{cm}^2$ ) = Negative (sample coating is consider non Cr(VI) based coating)
  - Concentration of Hexavalent chromium ( $\geq 0.10$  and  $\leq 0.13 \mu\text{g}/\text{cm}^2$ ) = Inconclusive (Unavoidable coating variations may influence the determination)
  - Concentration of Hexavalent chromium ( $\geq 0.13 \mu\text{g}/\text{cm}^2$ ) = Positive (Sample coating is consider to contain Cr(VI))
- Based on sum amount of PBB/PBDE limit, which is  $\leq 1000 \text{mg}/\text{kg}$

**Remark**

- The test portion was totally dissolved for cadmium, lead & mercury test by using pre-conditioning method as mentioned above.
- IEC 62321 flowchart can be obtained from <https://admin.apac-websites.eurofins.com/media/606192/efctm001-issue-2.pdf>

This 3 page(s) of report and its attachment(s), if relevant, has/have been validated by



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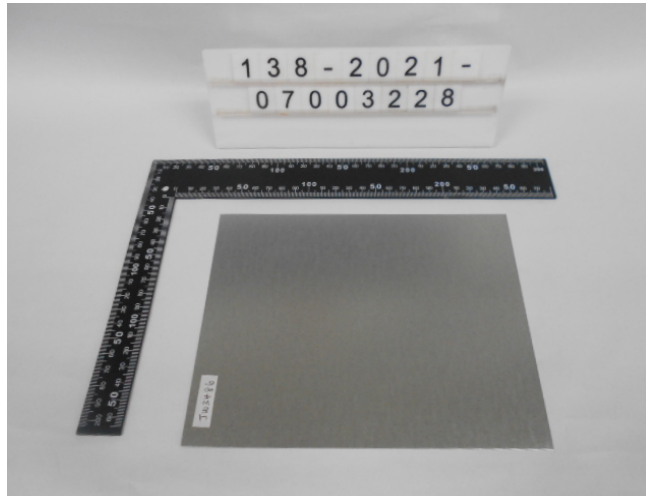
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**EXPLANATORY NOTE**

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- N/A** means not applicable.  
**ND** means not detected for value obtained is less than the Limit of Detection (LOD).  
**<LOD** means not detected at or below the Limit of Detection (LOD).  
**<LOQ** means below the Limit of Quantification (LOQ).

**Sample Photograph(S)**



- End of Report -