

TEST REPORT

Report No: AR-22-SV-025646-01
Customer: CSC STEEL SDN. BHD.
Date of Issue: 28/06/2022



Batch No: EUMYBM-00112155
Sample No: 138-2022-06004321

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

Attn: Ms. Chee Sook Jin

Date Sample Received: 22/06/2022
Date of Testing: 23/06/2022 to 28/06/2022

The following sample was identified by the customer as :

SAMPLE DESCRIPTION: REALZINC™ CR-FREE
 SAMPLE ID: JZ2564

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)
Cadmium (Cd), Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr6+), Monobromo biphenyl, Dibromo biphenyl, Tribromo biphenyl, Tetrabromo biphenyl, Pentabromo biphenyl, Hexabromo biphenyl, Heptabromo biphenyl, Octabromo biphenyl, Nonabromo biphenyl, Decabromo biphenyl, Sum Polybrominated Biphenyls (PBBs), Monobromo diphenyl ether, Dibromo diphenyl ether, Tribromo diphenyl ether, Tetrabromo diphenyl ether, Pentabromo diphenyl ether, Hexabromo diphenyl ether, Heptabromo diphenyl ether, Octabromo diphenyl ether, Nonabromo diphenyl ether, Decabromo diphenyl ether, Sum Polybrominated Diphenyl Ethers (PBDEs), Benzyl butyl phthalate (BBP), Bis(2-ethylhexyl)phthalate (DEHP), Dibutyl phthalate (DBP), 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	Polybrominated Biphenyl (PBBs)				IEC 62321-6	
	Monobromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Dibromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Tribromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Tetrabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Pentabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Hexabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Heptabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Octabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Nonabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Decabromo biphenyl	mg/kg	<LOQ	20		Refer Note 3
	Sum Polybrominated Biphenyls (PBBs)	mg/kg	<LOQ	20		≤1000mg/kg

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Analysis	Industrial Products Analysis	Unit	Result	LOQ	Test Method	Specification
SVK17	Polybrominated Diphenyl Ether (PBDEs)				IEC 62321-6	
	Monobromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Dibromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Tribromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Tetrabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Pentabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Hexabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Heptabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Octabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Nonabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Decabromo diphenyl ether	mg/kg	<LOQ	20		Refer Note 3
	Sum Polybrominated Diphenyl Ethers (PBDEs)	mg/kg	<LOQ	20		≤1000mg/kg
SVV1Q	Phthalates				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 (≥ 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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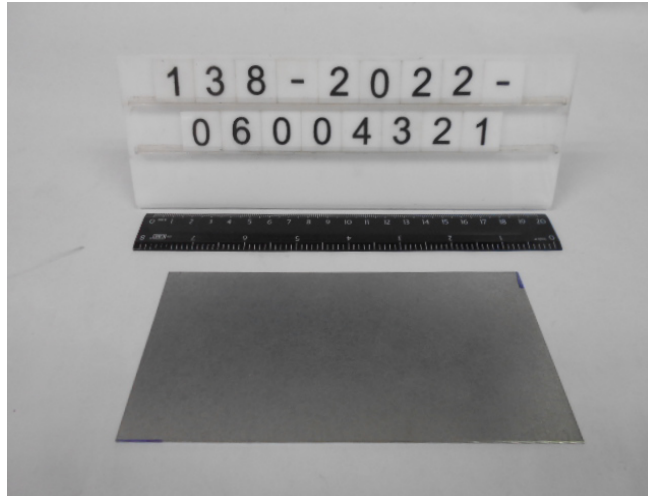
EXPLANATORY NOTE

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N/A means not applicable.
 <LOD means not detected at or below the Limit of Detection (LOD).
 <LOQ means below the Limit of Quantification (LOQ)

Sample Photograph



- End of Report -