

## ***Restriction of Hazardous Substances (ROHS)***

### ***Summary Report***

**Test of:** 100mm Processed Wafer

**Model No.:** 564103-585-566

**100mm Unique Identifier:** 130404 #24

**Applicant:** SemeFab Ltd.

**Test Type:** XRF Scan

**Test Specification:** EN 62321-1:2013  
EN 62321-2:2014  
EN 62321-3-1:2014

**SGS Serial Number:** EMC253345/1A

**Date of Receipt:** 27<sup>th</sup> April 2018

**Date of Test(s):** 30<sup>th</sup> April 2018

**Date of Issue:** 8<sup>th</sup> May 2018

**Issue Number:** 2

**Conclusion:** Based on the tests performed on submitted sample(s), the results show no conflict with the ROHS Directive 2011/65/EU and its subsequent amendments. See test results section of the report for details.

**Signature**  
**Test Engineer**

Chris Levy



**Signature**  
**Authorised Signatory**

Zee Ellahi



This document is issued by the Company subject to its General Conditions of Service, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>.

Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 28 days only.



# SUMMARY REPORT

Page 2 of 7

Issue Date: 8<sup>th</sup> May 2018  
SGS Serial Number: EMC 253345/1A  
Issue Number: 1

<b>CONTENTS</b>	<b>Page Number</b>
<b>1. Client Information .....</b>	<b>3</b>
<b>2. Test Location .....</b>	<b>3</b>
<b>3. Test Specification(s) and Purpose .....</b>	<b>4</b>
3.1 Test Specification(s) .....	4
3.2 Purpose Of Test .....	4
<b>4. Notes on Findings .....</b>	<b>5</b>
<b>5. Test Results .....</b>	<b>6</b>
<b>6. Photographs of samples tested .....</b>	<b>7</b>

## 1. Client Information

**Company Name:**

SemeFab Ltd.

**Main Address:**

Newark Road South,  
Eastfield Industrial Estate,  
Glenrothes, Fife.  
KY7 4NS  
United Kingdom

**Contact Person:**

Stuart Small

**Email:**

Stuart.small@semefab.com

**Phone:**

+44 1592 630630

## 2. Test Location

All testing performed as part of this assessment was undertaken at the following location;

SGS United Kingdom Ltd  
Units 12a and 12b Bowburn South Industrial Estate  
Bowburn  
Durham  
DH6 5AD  
United Kingdom

### 3. Test Specification(s) and Purpose

#### 3.1 Test Specification(s)

Standard	Title
EN 62321-1:2013 EN 62321-2:2014 EN 62321-3-1:2014	Electro technical products. Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)

#### 3.2 Purpose Of Test

The widespread use of electro technical products has drawn increased attention to their impact on the environment. The purpose of this test is to determine the levels of regulated substances Pb, Hg, Cd, Cr (VI) and their compounds, as well as PBB and PBDE in electro technical products on a consistent global basis.

#### 4. Notes on Findings

When inconclusive levels are obtained this denotes that the element cannot be accurately measured due to the close proximity of a non-restricted element with similar fluorescence characteristics.

I/M denotes that insufficient material has been supplied to gain a useable measurement.

XRF scanning indicates total Bromine presence, and cannot determine the presence of PBB or PBDEs. Only wet chemical analysis can confirm the level and presence of PBB or PBDEs.

XRF scanning indicates total Chromium presence, and cannot isolate the presence of Chromium 6. Only wet chemical analysis can confirm the level and presence of Chromium 6.

**The maximum permitted limits are quoted from ROHS directive 2011/65/EU**

<b>ROHS Restricted substances in Homogenous materials</b>	<b>Maximum permissible Limit (mg/kg)</b>
Cadmium Cd	100
Lead Pb	1000
Mercury Hg	1000
Hexavalent Chromium (Cr VI )	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenyl ethers (PBDE's)	1000

## 5. Test Results

Sample No.	Sample Description	Results				
		Cd	Hg	Pb	Cr	Br
1	564103-585-566 130404 #24	BL	BL	BL	BL	BL

Note: BL = Below Limit  
OL = Over Limit  
X = Further investigation needed

All readings were below the limits. No further investigation needed.

### Screening limits in mg/kg for regulated elements

Element	Polymer Materials	Metallic Materials	Composite Material
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	---	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

#### Notes:

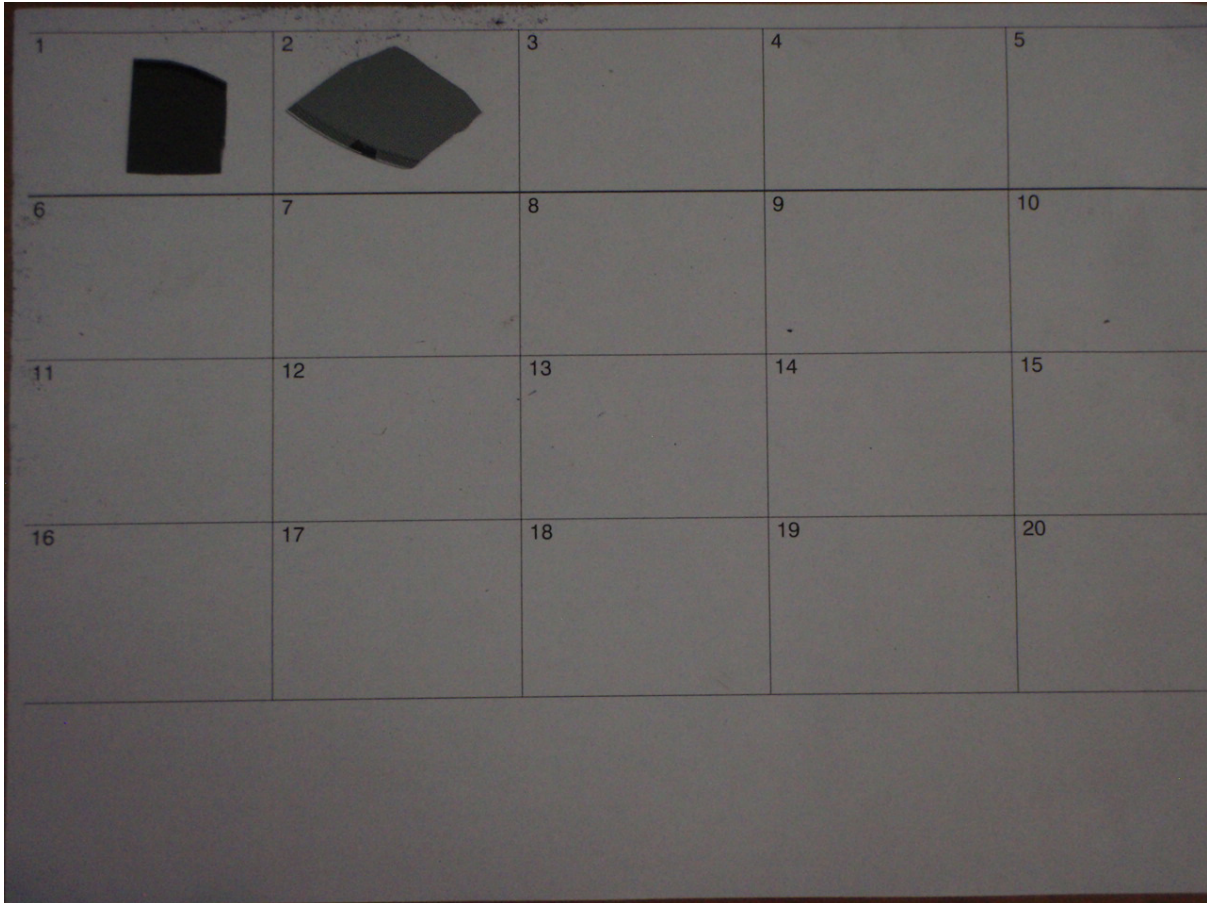
BL/OL = A "BELOW LIMIT" (BL) or "OVER LIMIT" (OL) determination will be set at 30 % (50 % for composite materials) less than or greater than the limit, respectively.

X = the symbol "X" marks the region where further investigation is necessary.

LOD = Limit of Detection

$\sigma$  = standard deviation

**6 Photographs of Samples Tested**



1. 564103-585-566 130404 #24

***End of Report***