

No. CPSA/240535265-CB51910 **TEST REPORT:** REPORTED DATE: 27 May 2024

REDRING SOLDER (M) SDN BHD

LOT 17486, JALAN 2, TAMAN SELAYANG BARU, 68100 BATU CAVES, SELANGOR, MALAYSIA.

The following sample(s) was/were submitted and identified by applicant as:

SAMPLE DESCRIPTION : PURE TIN SOLDER Sn JOB REF. C&P/2024-05-17-014

SAMPLE RECEIVED 17 May 2024

TESTING PERIOD : 17 May 2024 to 24 May 2024

TEST REQUESTED Selected test(s) as requested by customer **TEST METHOD** - PLEASE REFER TO NEXT PAGE(S) -

TEST RESULTS : - PLEASE REFER TO NEXT PAGE(S) -

SIGNED FOR AND ON BEHALF OF SGS (MALAYSIA) SDN BHDIA

TAY SIAM PINE TECHNICAL MANAGER

IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 1 of 7

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TEST RESULTS:

Test Part Description

Sample Description: -PLEASE REFER TO PAGE 1-

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Parameter(s):	Unit	Test Method	Result	MDL	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.	N.D.	2	Max 100
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.	N.D.	2	Max 1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+A1:2017, determination of Mercury by ICP-OES.	N.D.	2	Max 1000
Hexavalent Chromium (CrVI)	µg/cm²	With reference to IEC 62321-7-1:2015, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.	N.D.	0.10	-
Sum of PBBs	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	-	Max 1000
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Dibromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Tribromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Pentabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Hexabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Heptabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Octabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Nonabromobipheny l	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-

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TAY SIAM PINE
TECHNICAL MANAGER
IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 2 of 7

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TEST RESULTS:

Test Part Description

Sample Description: -PLEASE REFER TO PAGE 1-

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Parameter(s):	Unit	Test Method	Result	MDL	Limit
Sum of PBDEs	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	-	Max 1000
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.	N.D.	5	-

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TAY SIAM PINE TECHNICAL MANAGER

IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 3 of 7



TEST RESULTS:

Test Part Description

Sample Description: -PLEASE REFER TO PAGE 1-

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Parameter(s):	Unit	Test Method	Result	MDL	Limit
Dibutyl phthalate (DBP) (CAS No. 84-74-2)	mg/kg	With reference to IEC 62321-8:2017, determination of phthalates by GC-MS.	N.D.	50	Max 1000
Benzyl butyl phthalate (BBP) (CAS No. 85-68-7)	mg/kg	With reference to IEC 62321-8:2017, determination of phthalates by GC-MS.	N.D.	50	Max 1000
Di(2-ethylhexyl) phthalate (DEHP) (CAS No. 117-81-7)	mg/kg	With reference to IEC 62321-8:2017, determination of phthalates by GC-MS.	N.D.	50	Max 1000
Diisobutyl phthalate (DIBP) (CAS No. 84-69-5)	mg/kg	With reference to IEC 62321-8:2017, determination of phthalates by GC-MS.	N.D.	50	Max 1000

Note: (a) mg/kg = ppm; (0.1wt% = 1000ppm)

- (b) N.D. = Not Detected
- (c) MDL = Method Detection Limit
- (d) = Not regulated
- (e) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (f) IEC 62321 series is equivalent to EN 62321 series
- (g) a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 μg/cm². The sample coating is considered to contain CrVI.
- b. The sample is negative for CrVI if CrVI is N.D. (concentration less than 0.10 μ g/cm²). The coating is considered a non-CrVI based coating.
- c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

(h)The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

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TAY SIAM PINE
TECHNICAL MANAGER

IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 4 of 7



Test Part Description:

Sample Description: -PLEASE REFER TO PAGE 1-

REDRING SOLDER (M) SDN BHD CB51910 PHRE THE SILPER SH OZ OE OF OG O9 OZ O8 06 00 OZ OE OF OG O9 OZ O8 06 00

SGS authenticate the photo on original report only

SIGNED FOR AND ON BEHALF OF SGS (MALAYSIA) SDN BHOMAN SIAN SIAN SIAN PINE TECHNICAL MANAGER

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Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 5 of 7



TEST REPORT:

No. CPSA/240535265-CB51910

1. DETERMINATION OF CADMIUM CONTENT BY IEC 62321-5 2013

Sample Receiving and Registration

Sample Preparation

Weigh sample (0.2-0.5g) into digestion vessel

Acid digestion (Hotplate)

"Totally Dissolved"

Filtration

Analyses by ICP

4. DETERMINATION OF HEXAVALENT CHROMIUM BY IEC 62321-7-1 2015

2. DETERMINATION OF LEAD CONTENT

BY IEC 62321-5 2013

Sample Receiving and Registration

Sample Preparation

Weigh sample (0.2-0.5g) into digestion vessel

Acid digestion (Hotplate)

"Totally Dissolved"

Filtration

Analyses by ICP

REPORTED DATE: 27 May 2024

Sample Receiving and Registration

Sample Preparation

Boiling-water-extraction

Analyses by UV-Spectrophotometer

Test Report

3. DETERMINATION OF MERCURY CONTENT BY IEC 62321-4 2013/AMD1 2017

Sample Receiving and Registration

Sample Preparation

Weigh sample (0.1-0.5g) into digestion vessel

Acid digestion (Hotplate)

"Totally Dissolved"

Filtration

Analyses by ICP

5. DETERMINATION OF PBB/PBDE WITH GC-MS BY IEC 62321-6 2015

Sample Preparation

Weigh sample (0.5-4.0g) into extraction thimble

Soxhlet Extraction with Toluene

Filter through 0.45 um membrane filter

Analyses by GC-MS (with appropriate dilution)

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10871-7 TAY SIAM PINE TECHNICAL MANAGER IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver: 2.0, Effective Date: 15/03/2021

Page 6 of 7

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TEST REPORT:

No. CPSA/240535265-CB51910

DETERMINATION OF PHTHALATES WITH GC-MS BY IEC 62321-8:2017 Sample Cutting / Preparation Sample Measurement Solvent Extraction Concentrate / Dilute extracted solution GC-MS analysis DATA

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TAY SIAM PINE
TECHNICAL MANAGER
IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/001, Ver. 2.0, Effective Date: 15/03/2021

*** End of test report ***

Page 7 of 7

REPORTED DATE: 27 May 2024



Job Ref. C&P/2024-05-17-014

REDRING SOLDER (M) SDN BHD

LOT 17486, JALAN 2, TAMAN SELAYANG BARU, 68100 BATU CAVES, SELANGOR, MALAYSIA.

The following sample(s) was/were submitted and identified by applicant as:

Sample Description : PURE TIN SOLDER Sn

Sample Received 17-May-2024

Testing Period 17-May-2024 to 24-May-2024

Test Requested Selected test(s) as requested by customer

Test Method -PLEASE REFER TO NEXT PAGE(S)-Test Results

: -PLEASE REFER TO NEXT PAGE(S)-

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Test Report Form No.: SGS/TR/CP/002, Ver. 1.0, Effective Date: 04/02/2021

Page 1 of 4



Job Ref. C&P/2024-05-17-014

Test results by chemical method:

Test Part Description:

Sample Description: -PLEASE REFER TO PAGE 1-

Test Parameter(s):	Unit	Test Method	Result	MDL
Halogen-Fluorine (F)	mg/kg	With reference to BS EN 14582:2016, analysis performed by IC method for Fluorine content.	N.D.	50
Halogen-Chlorine (CI)	mg/kg	With reference to BS EN 14582:2016, analysis performed by IC method for Chlorine content.	N.D.	50
Halogen-Bromine (Br)	mg/kg	With reference to BS EN 14582:2016, analysis performed by IC method for Bromine content.	N.D.	50
Halogen-lodine (I)	mg/kg	With reference to BS EN 14582:2016, analysis performed by IC method for lodine content.	N.D.	50

Note: (a) mg/kg = ppm (b) N.D. = Not Detected

(c) MDL = Method Detection Limit

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SGS 10871-T TAY SIAM PINE TECHNICAL MANAGER IKM NO. M/3452/6047/11/12

Test Report Form No.: SGS/TR/CP/002, Ver: 1.0, Effective Date: 04/02/2021

Page 2 of 4



TEST REPORT

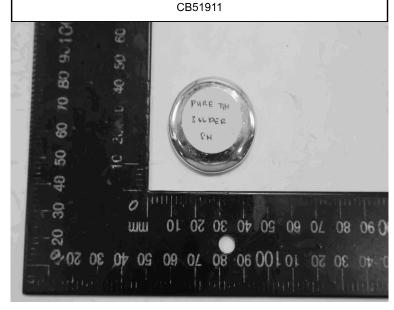
No. CPSA/240535266-CB51911 Job Ref. C&P/2024-05-17-014

REPORTED DATE: 27-May-2024

Test Part Description:

Sample Description: -PLEASE REFER TO PAGE 1-

REDRING SOLDER (M) SDN BHD



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Test Report Form No.: SGS/TR/CP/002, Ver: 1.0, Effective Date: 04/02/2021

Page 3 of 4



TEST REPORT

No. CPSA/240535266-CB51911 Job Ref. C&P/2024-05-17-014

DETERMINATION OF HALOGEN CONTENT Sample pre-treatment Weighting and putting sample in cell Combustion / Absorption Dilution to fixed volume Analyses by IC

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Test Report Form No.: SGS/TR/CP/002, Ver: 1.0, Effective Date: 04/02/2021

Page 4 of 4

REPORTED DATE: 27-May-2024

*** End of test report ***