

Job Ref. C&P/2024-12-06-008

SINGAPORE ASAHI CHEMICAL & SOLDER INDUSTRIES PTE LTD

47 PANDAN ROAD SINGAPORE 609288

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

SAMPLE DESCRIPTION : SCS7

SAMPLE RECEIVED : 06-December-2024

TESTING PERIOD : 06-December-2024 to 12-December-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 BHD

NURUL NADIAH ARMYS SENIOR CHÉMIST
IKM NO. M/6708/8574/20/24

Test Report Form No.: SGS/TR/CP/039, Ver: 1.0, Effective Date: 21/07/2023

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Job Ref. C&P/2024-12-06-008

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
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.	168	2	Max 1000
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.	N.D.	2	Max 100
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	-
Nonabromobiphenyl	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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Job Ref. C&P/2024-12-06-008

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	-

SIGNED FOR AND ON BEHALF OF

SGS (MALAYSIA) SDN BHD

NURUL NADIAH ARMYS SENIOR CHÉMIST

IKM NO. M/6708/8574/20/24

Test Report Form No.: SGS/TR/CP/039, Ver: 1.0, Effective Date: 21/07/2023

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SGS 10871-T



Job Ref. C&P/2024-12-06-008

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.
 - 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 $\mu g/cm^2$). The coating is considered a non-CrVI based coating.
 - c. The result between 0.10 $\mu g/cm^2$ and 0.13 $\mu g/cm^2$ 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.

 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.

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

NURUL NADIAH ARMYS SENIOR CHÉMIST IKM NO. M/6708/8574/20/24

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Job Ref. C&P/2024-12-06-008

Remark:

This test report supersedes No. CPSN/241248596-CB67783.

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SGS (MALAYSIA) SDN BHD

SGS

NURUL NADIAH ARMYS
SENIOR CHÉMIST

IKM NO. M/6708/8574/20/24

Test Report Form No.: SGS/TR/CP/039, Ver: 1.0, Effective Date: 21/07/2023

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Job Ref. C&P/2024-12-06-008

Test Part Description:

Sample Description: -PLEASE REFER TO PAGE 1-

SINGAPORE ASAHI CHEMICAL & SOLDER INDUSTRIES PTE LTD CB67783



SGS authenticate the photo on original report only

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NURUL NADIAH ARMYS
SENIOR CHEMIST

IKM NO. M/6708/8574/20/24

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TEST REPORT:

No. CPSN/241248675-CB67783 Job Ref. C&P/2024-12-06-008

REPORTED DATE: 16-December-2024

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

Sample Receiving and Registration

Sample Preparation

Weight sample (0.2-0.5g) into digestion vessel

Acid digestion

"Totally Dissolved"

Filtration

Analyses by ICP

2. DETERMINATION OF LEAD CONTENT BY IEC 62321-5 2013

Sample Receiving and Registration

Sample Preparation

Weight sample (0.2-0.5g) into digestion vessel

Acid digestion

"Totally Dissolved"

Filtration

Analyses by ICP

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

Sample Receiving and Registration

Sample Preparation

Weight sample (0.1-0.5g) into digestion vessel

Acid digestion

"Totally Dissolved"

Filtration

Analyses by ICP

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

Sample Receiving and Registration

Sample Preparation

Take appropriate sample size (25cm2)

Boiling-water-extraction

Analyses by UV- Spectrophotometer

5. DETERMINATION OF PBB/PBDE WITH GC-MS

Sample Preparation

Weigh sample (0.5-4.0g) into extraction thimble

Soxhlet Extraction with Toluene

Filter through 0.45 µm membrane filter

Analyses by GC-MS (with appropriate dilution)

BY IEC 623321-6 2015

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SGS (MALAYSIA) SDN BHD

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SENIOR CHÉMIST IKM NO. M/6708/8574/20/24

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TEST REPORT:

No. CPSN/241248675-CB67783 Job Ref. C&P/2024-12-06-008 REPORTED DATE: 16-December-2024

DETERMINATION OF PHTHALATES WITH GC-MS BY IEC 62321-8:2017

Sample Cutting / Preparation

+

Sample Measurement

 $\mathbf{+}$

Solvent Extraction

*

Concentrate / Dilute extracted solution

 $\mathbf{\downarrow}$

GC-MS analysis

+

DATA

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*** End of test report ***

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