



Analytical Testing Report

Indalloy 182

Report Number: R-20220302-084

Prepared for:

Cliff Talbot

Indium Corporation

1676 Lincoln Avenue

Utica, NY 13503

P.O. #: N/A

March 16, 2022

NSL Analytical Services, Inc.
NSL Analytical
4450 Cranwood Parkway
Cleveland, Ohio 44128
Phone: 216-438-5200
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**Tests
Requested:**

- European Directive 2015/863/EU Amending 2011 / 65 / EU Annex II (RoHS; Recasting 2001 / 95 / EC: Cadmium, Lead, Mercury, Hexavalent Chromium, Polybromobiphenyl (PBB), and Polybromodiphenylether (PBDE), (DIBP, DBP, BBP, DEHP) content.
- Antimony, Beryllium and Arsenic Content
- Total Halogen Content
- DnOP, DINP, DIDP, DnHP





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Project Definition and Scope

European Directive 2015/863/EU Amending 2011 / 65 / EU Annex II (RoHS; Recasting 2001 / 95 / EC:

Cadmium, Lead, Mercury, Hexavalent Chromium, Polybromobiphenyl (PBB), and Polybromodiphenylether (PBDE) content.

Antimony, Beryllium, Arsenic Content, Total Halogen content.

DIBP, DBP, BBP, DEHP, DnOP, DINP, DIDP, DnHP content.

Sample Identification

The sample was received on March 2, 2022 and is labeled as indicated below.

Sample Number	Client Label
S-220302-130	Indalloy 182

Method

With reference to IEC 62321-7-2: 2017: Chromium (VI) analysis was conducted by UV-Visible Spectroscopy.

With reference to IEC 62321-6: 2015: PBB, PBDE analysis was conducted by Gas Chromatography – Mass Spectrometry (GC-MS).

With reference to IEC 62321-4: 2013: Mercury analysis was conducted by Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES).

With reference to IEC 62321-5: 2013: Lead, Cadmium and Chromium analysis was conducted by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS).

Antimony, Beryllium and Arsenic analysis was conducted by Inductively Coupled Plasma - Mass Spectrometry (ICP-MS). Following Microwave Assisted Acid Digestion with reference to EPA 3051A/3052

With reference to IEC62321-3-2: 2013, BS EN 14582, ASTM D 7359: Halogen analysis was conducted by Ion Chromatography and SIE.

With reference to IEC62321-8 and CPSC-CH-C1001-09.3: DIBP, DBP, BBP, DEHP, DnOP, DINP, DIDP, DnHP were analyzed by Gas Chromatography – Mass Spectrometry (GC-MS).

Table 1: RoHS Results

Test Item	Results (mg/kg)	Detection Limit (mg/kg)	Reference Limit (mg/kg)
	Sample # S-220302-130		
Lead (Pb)	6	5	1000
Cadmium	ND	5	100
Chromium	ND	5	
Hexavalent Chromium (Cr(VI))	ND ²		1000
Mercury (Hg)	ND	5	1000
Sum of PBBs	ND ³	300	1000
Monobromobiphenyl	ND ³	100	-
Dibromobiphenyl	ND ³	100	-
Tribromobiphenyl	ND ³	10	-
Tetrabromobiphenyl	ND ³	10	-
Pentabromobiphenyl	ND ³	10	-
Hexabromobiphenyl	ND ³	10	-
Heptabromobiphenyl	ND ³	10	-
Octabromobiphenyl	ND ³	10	-
Nonabromobiphenyl	ND ³	10	-
Decabromobiphenyl	ND ³	10	-
Sum of PBDEs	ND ³	300	1000
Monobromodiphenyl ether	ND ³	100	-
Dibromodiphenyl ether	ND ³	10	-
Tribromodiphenyl ether	ND ³	10	-
Tetrabromodiphenyl ether	ND ³	10	-
Pentabromodiphenyl ether	ND ³	10	-
Hexabromodiphenyl ether	ND ³	10	-
Heptabromodiphenyl ether	ND ³	10	-
Octabromodiphenyl ether	ND ³	10	-
Nonabromodiphenyl ether	ND ³	50	-
Decabromodiphenyl ether	ND ³	100	-

Note: ND = Not Detected

Note: mg/kg = ppm

Note: ND² = Total Chromium analysis by ICP-MS was not detected in the submitted samples. Therefore, Hexavalent Chromium determination by UV-Visible spectroscopy was not performed.

Note: ND³ = Total Bromine by Ion Chromatography was determined to be < 250 ppm, therefore PBB and PBDE analysis by Gas Chromatography – Mass Spectrometry was not performed.

Table 2: Antimony, Beryllium and Arsenic Content

Test Item	Results (mg/kg)	Detection Limit (mg/kg)
	Sample # S-220302-130	
Antimony (Sb)	ND	5
Beryllium (Be)	ND	5
Arsenic (As)	ND	5

Table 3: Halogen Content

Test Item	Results (mg/kg)	Detection Limit (mg/kg)
	Sample # S-220302-130	
Chlorine (Cl)	ND	10
Bromine (Br)	ND	10
Fluorine (F)	ND	10
Iodine (I)	ND	10

Table 4: Phthalates Results

Test Item	Results (mg/kg)	Detection Limit (mg/kg)	Reference Limit (mg/kg)
	Sample # S-220302-130		
DIBP	ND	100	
DBP	ND	100	1000
BBP	ND	100	1000
DEHP	ND	200	1000
DnOP	ND	100	1000
DINP	ND	500	1000
DIDP	ND	500	1000
DnHP	ND	100	

Note: ND = Not Detected Note: mg/kg = ppm



If you have any questions regarding these results, please contact us.

Report Prepared By: Dan Mauser

Process Flow - Analytical Methods for Chemical Analysis

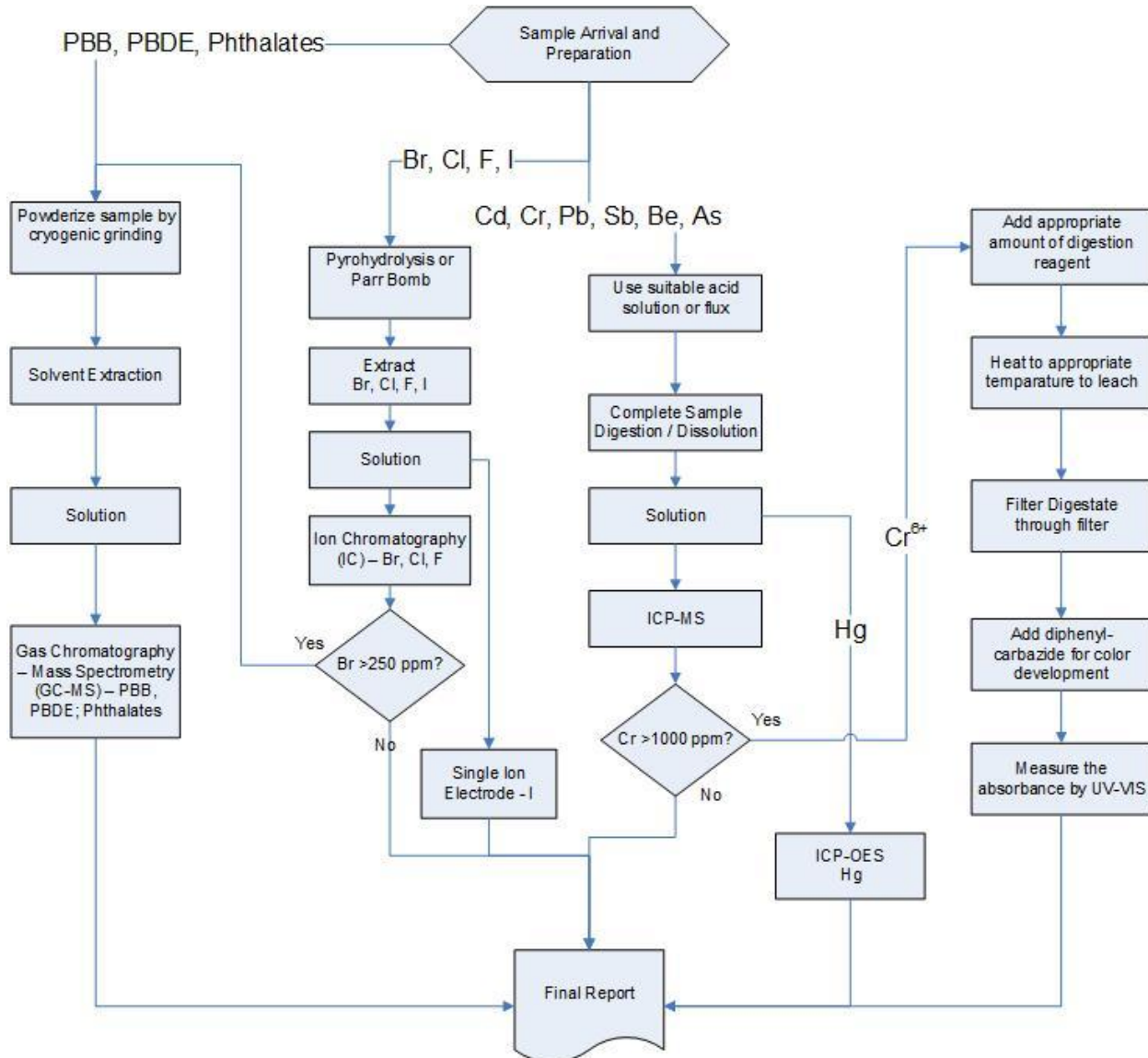


Photo: Sample # S-220302-130

MAR 02 2022

Indium – SERVICE REQUEST FORM
Restricted Substance Testing for E&E Products

By: my
 CONTRACT REVIEW

Client Requesting NSL Service

Request Service: 5 days; Rush Service: 2 days; 3 days MAR 2 AM 10:23

Company Name: **INDIUM CORPORATION**

Invoice: Address: 1676 Lincoln Ave. Report: Address: Same as billing address
 P. O. Box 269 Utica, New York 13503 Contact Name:
 Contact Name: Cliff Talbot Telephone:
 Telephone: 315-853-4900 ext. 7415 Email:
 Email: ctalbot@indium.com Ready for testing

Sample Information

Sample Description: Indalloy 182 PO #: EP21471 Location: ECD
 Color: Contain Phthalates: No
 Powder Composition: Au80/Sn20 Contain Bromine: No
 Special Instructions: Photo of material not the jar

Re-test Sample: _____ If yes, provide previous report number: _____

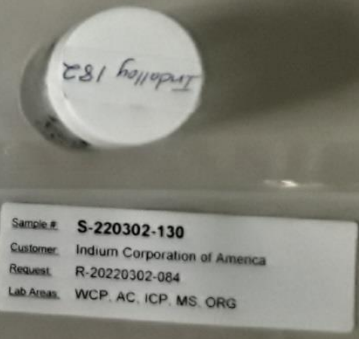
NSL Service(s) Required: Please check appropriate line(s) below:
 (Analyze the submitted sample(s) per NSL Quote Number: NSLQ20867: line 7)

RoHS: Full Package IEC 62321 Phthalates: DEHP, DBP, DINP, DIDP, DNOP, BBP, DIBP, DnHP
 Cadmium (Cd) HBCDD
 Lead (Pb) High Concentration XRF Testing (please list substances)
 Low Concentration PFOS/PFOA
 Mercury (Hg) Packaging Test: TPCH (packaging): Pb, Cd, Hg, Cr VI
 PBBs and PBDEs Halogens:
 Chromium VI (Cr VI) Chlorine (Cl) Bromine (Br)
 Antimony Beryllium Arsenic Iodine (I) Fluorine (F)
 Other tests (please specify Analysis/Method): _____

Photos Required Flow Chart Other Reporting Instruction: No result conclusion on report cover page

NSL Customer Service Representative: _____ NSL Sales Contact: _____
 NSL Analytical Services Inc. Return Sample Immediately; if returned please
 4450 Cranwood Parkway provide shipping account number.
 Cleveland, OH 44128 Destroy/Discard Sample after 90 days
 Phone: 1-216-438-5200
 Fax: 1-216-438-5050

Client Confirmation: We confirm that the above information is complete and understand that the performances of the services described are governed by NSL General Conditions of Service.



Rebecca L. Bailey

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Technical Specialist-WC, AC, PE