

WACKER

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RoHS Compliance Confirmation

The attached test report created by *Intertek Consumer Goods GmbH* confirms that Wacker's high-purity silicon complies with the limits as set by RoHS Directive 2011/65/EC including Directive 2015/863/EU.

The test results are valid for chips and chunks.

Intertek Consumer Goods GmbH: <https://www.intertek.com>

Test period: November 4th – December 16th, 2019

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Fürth, December 10, 2019

TEST REPORT No. FUHLCP2019-10098-E2

Date sample received: November 04/2019
Period of testing: November 07/2019 – November 27/2019
Original test report: November 27/2019; Expanded test report: December 10/2019;
Expanded test report 2: December 16/2019
Technical Director: Kerstin Scharrer

Sample description: Polysilicon US



Conclusion based on tested item

Test order	Status
testing according to the RoHS directive 2011/65/EC including Directive (EU) 2015/863	pass [*]

^{*} Please see overview of the test results.

- Test results see next pages -

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Abbreviations:

LOQ = Limit of quantification	nM = Non Metal
LOD = Limit of detection	M = Metal
n.d. = not determinable	cM = Composite sample
CS = Combined sample	BL = Below limit
* = Test method is not part of the accreditation scope	OL = Over limit
** = Outsourcing	X = Inconclusive
# = Subsequent delivery	σ = Standard deviation
n.a. = not applicable	

List of component parts:

Method: Disassembly, disjointment and mechanical sample preparation according to DIN EN 62321-2:2014-09

Sample No.	Part No.	Material	Description
927824	1	nM	Polysilicon US – high purity silicon

Note: Results were obtained by EDXRF for primary screening. Additional chemical testing using ICP (for Cd, Pb), AAS (for Hg), IC-UC/VIS (for CrVI) and GC/MS (for PBBs/PBDEs) are recommended, if the concentration exceeds the below warning value according to DIN EN 62321-3-1:2014-10.

Element	Unit	Non metal	Metal
Cd	mg / kg	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$
Pb	mg / kg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$
Hg	mg / kg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$
Br	mg / kg	$BL \leq (300-3\sigma) < X$	--
Cr	mg / kg	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$

Element	Unit	Composite material
Cd	mg / kg	$LOD < X < (150+3\sigma) \leq OL$
Pb	mg / kg	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	mg / kg	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	mg / kg	$BL \leq (250-3\sigma) < X$
Cr	mg / kg	$BL \leq (500-3\sigma) < X$

1. XRF screening

Method: XRF according to DIN EN 62321-3-1:2014-10*

Sample No.	Part No.	Pb	Hg	Cd	Cr _{total}	Br	Status
927824	1	BL	BL	BL	BL	BL	pass



2. Phthalates in mg/kg

Test method: 12.01.02.04_Phthalate:2018-11 / DIN EN 62321-8:2017-12 mod.
LOQ: 50 mg/kg respectively as stated

Parameter	Abbrev.	CAS- No.	Sample No. 927824 Part No. 1
Diisobutylphthalate	DIBP	84-69-5	<50
Dibutylphthalate	DBP	84-74-2	<50
Benzylbutylphthalate	BBP	85-68-7	<50
Bis-(2-ethylhexyl)phthalate	DEHP	117-81-7	<50
Status	Phthalate		pass

Intertek Consumer Goods GmbH



Projektmanager RFA - RoHS / Projectmanager XRF - RoHS

Alexander Pecher

Revision history

Page	Type of change
1	Images digitally edited from colour photos to black and white photos
1	Images were reduced from 2 to 1 image
1, 2	Sample description and description in list of component parts was changed: silver was deleted

General note:

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End of report