SKLOPÍSEK STŘELEČ
QUALITY IN EVERY GRAIN

Sklopísek Střeleč, a.s. | Hrdoňovice 80, 507 45 Újezd pod Troskami, Czech Republic

Tel.: +420 493 505 111 | Fax: +420 493 505 328 | ID: Company 44795688
V.A.T. ID: CZ44795688 | Registered at the District Court in Hradec Králové,
on December 5th, 1991, under the No. B 1093
Banking services: ČSOB Bratislava, a.s.,
IBAN SK81 7500 0000 0000 2575 6453 BIC: CEKOSKBX
web: www.sklopisek.cz | e-mail: sklopisek@sklopisek.cz

RoHS Declaration

Hrdoňovice, 10th December 2019

Declaration RoHS 2011/65/EU

Dear customer,

Please be advised that all products that are produced by Sklopisek Strelec, a.s. meet the obligations of the Directive of European Parliament and Council 2011/65/EU RoHS (Rescriction of Hazardeous Substances) on the restriction of using of certain hazardous substances in electrical and electronic equipment.

To the best of our knowledge, the restricted substances as listed by RoHS are not determined above the limits mentioned in the Testing protocol.

Yours faithfully,

Ing. Petr Hübner

Managing Director

ezú elektrotechnický zkušební ústav

Elektrotechnický zkušební ústav, s. p.
Pod lisem 129/2
171 02 Praha 8 - Troja

TEST REPORT

Test Report No.: 912921-01/01 Issued: 21. 11. 2019

Name of product:	**Sand**
Type of product:	**Mixture of milled sands: ST 2, ST 2H, ST 6, ST 8, ST 9; Mixture of glass sands: ST 08, ST 10, ST 15, ST 40; Mixture of foundry sands: ST 52, ST 53, ST 54, ST 55, ST 56; Mixture of technical sands: ST 01/06, ST 03/08, ST 03/30, ST 05/10, ST 06/12, ST 10/40**
Ratings:	-
Serial number:	-
Manufacturer:	**Sklopísek Střeleč, a. s.** Hrdoňovice 80, 507 45 Újezd pod Troskami - Hrdoňovice, Czech Republic
Production site:	-
Ordering firm:	**Sklopísek Střeleč, a. s.** Hrdoňovice 80, 507 45 Újezd pod Troskami - Hrdoňovice, Czech Republic
Number of tested samples:	4
Samples submitted on:	11. 11. 2019
Location of testing:	Elektrotechnický zkušební ústav, s. p.
Tests performed	**from** 12. 11. 2019 **through** 21. 11. 2019
Other data:	-
Tested according to:	RoHS Directive 2011/65/EU as amended by Directive 2015/863/EU ZP 344/02 – The Method for determination of substances in materials using X-ray fluorescent spectrometry

Compiled by: Tereza Medová

elektrotechnický zkušební ústav ezú -11- zkušební laboratoř

Approved by: Jiří Bažant
Testing laboratory technical manager

No. of pages: 4 No. of annexes: 1 No. of annexes pages: 3

Description of the sample:

The following samples were submitted:

4 types of sand:
"Směs technických": ST 01/06, ST 03/08, ST 03/30, ST 05/10, ST 06/12, ST 10/40
"Směs sklářských": ST 08, ST 10, ST 15, ST 40
"Směs slévárenských": ST 52, ST 53, ST 54, ST 55, ST 56
"Směs mletých": ST 2, ST 2H, ST 6, ST 8, ST 9

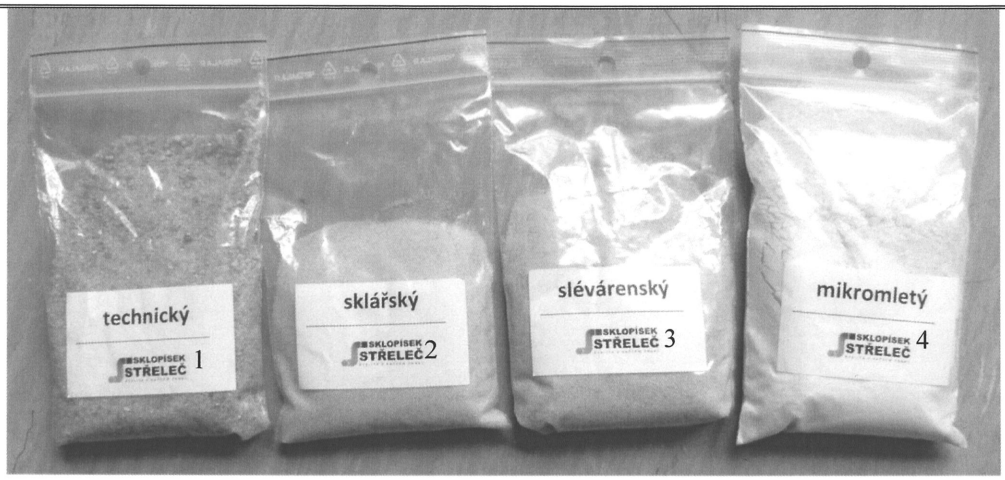

Fig. 1 - Samples

Testing:

1 Determination of Pb, Cd, Cr, Hg, Br - spectral analysis:

ZP 344/02 – The Method for determination of substances in materials using X-ray fluorescent spectrometry. (See ČSN EN 62321:2009, cl. 6, ČSN EN 62321-1:2014 and ČSN EN 62321-3-1:2014).

Principle of the method: EDXRF, energetic dispersion X-ray fluorescent spectrometry.
Instruments used: Analyzer MESA-50K HORIBA, inv. No: 110324
Conditions: Temperature (23 ± 3) °C, Rel. humidity (35 ± 5) %

2 Determination of Phthalates (DEHP, BBP, DBP and DIBP) - GC/MS, Method ZM-14:

Measurement of four phthalates was performed at University of Chemistry and Technology, Prague, Independent Packaging Laboratory of UCT Prague. Test report No.: EZU 06-en/19 of 21. 11. 2019 (see Annex 1).

Evaluation:

The limit concentrations of hazardous substances in homogeneous material according to the requirements of Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2) and its amendment Directive (EU) 2015/863:

Test item(s)	Limit concentration (% w/w)	Limit concentration (mg/kg)	Name
Pb	0,1 %	1000 mg/kg	Lead
Hg	0,1 %	1000 mg/kg	Mercury
Cr^{VI}	0,1 %	1000 mg/kg	Hexavalent chromium
PBB, PBDE	0,1 %	1000 mg/kg	Polybrominated biphenyls and polybrominated diphenyl ethers
Cd	0,01 %	100 mg/kg	Cadmium
DEHP	0,1 %	1000 mg/kg	Bis(2-ethylhexyl) phthalate
BBP	0,1 %	1000 mg/kg	Butyl benzyl phthalate
DBP	0,1 %	1000 mg/kg	Dibutyl phthalate
DIBP	0,1 %	1000 mg/kg	Diisobutyl phthalate

XRF screening threshold values:

Element	Plastic material	Metal material	Complex material
Cd	BL≤(70-3σ)<X< (130+3σ) ≤OL	BL≤(70-3σ)<X< (130+3σ) ≤OL	BL≤(50-3σ)<X< (150+3σ) ≤OL
Pb	BL≤(700-3σ)<X< (1300+3σ) ≤OL	BL≤(700-3σ)<X< (1300+3σ) ≤OL	BL≤(500-3σ)<X< (1500+3σ) ≤OL
Hg	BL≤(700-3σ)<X< (1300+3σ) ≤OL	BL≤(700-3σ)<X< (1300+3σ) ≤OL	BL≤(500-3σ)<X< (1500+3σ) ≤OL
Br	BL≤(300-3σ)<X	-	BL≤(250-3σ)<X
Cr	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X

Note: BL: Below Limit, OL: Over Limit, X: Further examination required, -: Not regulated, σ: Standard deviation of instrument, units: mg/kg

Results of EDXRF screening:

No.	Pb (mg/kg)	3σ	Cd (mg/kg)	3σ	Cr (mg/kg)	3σ	Hg (mg/kg)	3σ	Br (mg/kg)	3σ	Result
1	ND	ND	ND	ND	6,6	18,2	ND	ND	ND	ND	BL
2	ND	ND	ND	ND	3,9	25,4	ND	ND	ND	ND	BL
3	ND	ND	ND	ND	5,8	32,2	ND	ND	ND	ND	BL
4	ND	ND	ND	ND	4,3	18,2	ND	ND	ND	ND	BL

Note:
BL: Below Limit. OL: Over Limit. X: Inconclusive. Further examination required. ND: Not detected
Br: Determination of total bromine. To determine presence of PBB, PBDE is necessary to use another analytical method.
Cr: Determination of total chromium content. It is necessary to use another analytical method to determine hexavalent chromium.

Results of GC/MS:

No.	DIBP % (w/w)	DBP % (w/w)	BBP % (w/w)	DEHP % (w/w)	Result
1	<0,0001	<0,0001	<0,0001	<0,0001	WL
2	<0,0001	<0,0001	<0,0001	<0,0001	WL
3	<0,0001	<0,0001	<0,0001	<0,0001	WL
4	<0,0001	<0,0001	<0,0001	<0,0001	WL

Note:
The results are taken from Test report No.: EZU 06-en/19 of 21. 11. 2019 (see Annex 1).
WL: Within limit

Test results:

The measured values did not exceed limit concentrations of hazardous substances in homogenous materials according to Directive 2011/65/EU (RoHS 2) and its amendment Directive (EU) 2015/863.

Compiled by: T. Medová

UCT PRAGUE

University of Chemistry and Technology, Prague
Independent packaging laboratory of UCT Prague
UCT Prague, Department of Food Preservation, Technická 5, 166 28 Prague 6, Czech Republic
homepage: nol.vscht.cz

TESTING PROTOCOL

No.: EZU 06-en/19

Customer: **The Electrotechnical Testing Institute.**
Pod Lisem 129/2
171 02 Prague 8 – Troja
The Czech Republic
VAT CZ00001481

Product: Four samples of the sand. (Contract 912921).
Sample labelling in the laboratory – customer designation:
EZU 06/19/1 – technical sand,
EZU 06/19/2 – glass sand,
EZU 06/19/3 – foundry sand,
EZU 06/19/4 – micro–milled sand.

Producer: See customer.

Objective: RoHS analysis for four types of phthalates (BBP, DBP, DEHP, and DIBP).
See testing methods (page 2).

Processed by: Lenka Votavová, MSc, PhD

Appendix: None

NEZÁVISLÁ OBALOVÁ
LABORATOŘ (NOL)
VŠCHT Praha
Technická 3, 166 28 Praha 6

Votavová

Prague, November 21, 2019

Lenka Votavová, MSc, PhD
quality manager

1. Basic information

Sample collection	**Samples collected by**	Customer
	Date of the collection	None
	Date of the transfer to IPL	November 13, 2019
Used testing methods IPL	**ZM-14[N)]**	**Determination of phthalic acid esters in polymer materials** *(GC-MS, EPA Method 506, EPA Method 525.2).*
Date of testing	November 18 – 21, 2019	
Used devices	• analytical balance AND HR-200-EC (A&D Instruments LTD) • gas chromatograph 6890N (Agilent Technologies, USA)	

[N)] Non accredited testing method.

2. Procedure of preparation of the samples for testing

Four samples of the sand were delivered to the laboratory. The samples were tested in an original state.

Phthalic acid esters were extracted from the samples into n-hexane. The extract was evaporated to dryness and the residue was dissolved in 2 ml of n-hexane with internal standard (dipentyl phthalate) and analysed by gas chromatography under the following conditions: gas chromatograph Hewlett Packard 5890; detector Hewlett Packard 5972, quadrupole mass spectrometer, ionization: EI+ 70 eV; temperature of ion source 280 °C; scan range TIC; column DB-5HT, 30 m × 0.25 mm, film 0.10 μm; carrier gas He at 0,6 ml/min; inlet temperature 300 °C; injection volume 1 μl (split mode ratio 1:100); the oven temperature program: 70 °C (5 min) to 300 °C at 15 °C/min, 300 °C to the end of analysis. Identification of phthalic acid esters (diisobutyl phthalate – DIBP, dibutyl phthalate – DBP, butyl benzyl phthalate – BBP and diethylhexyl phthalate – DEHP) was performed using the chromatographic software HP Chemstation equipped with the library of mass spectra NIST14.

Determination of phthalic acid esters was performed using internal standard dipentyl phthalate. Phthalic acid esters contents in the samples were expressed as a percentage by weight of the sample (% w/w).

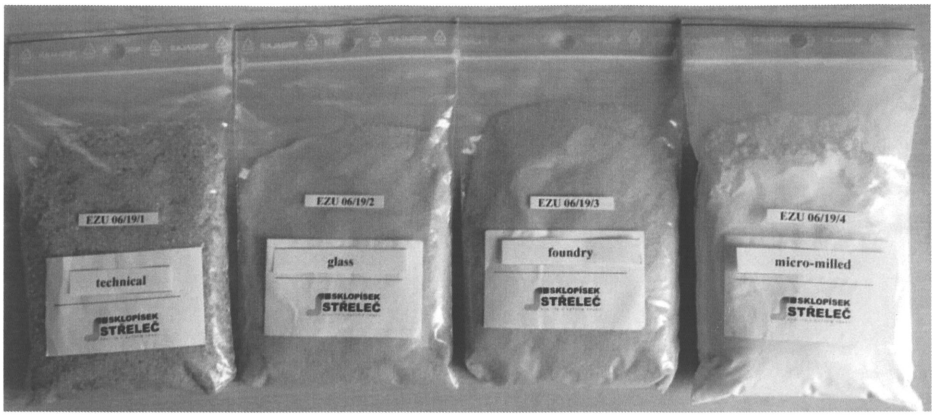

Figure 1 – Tested samples.

3. Results

Tested parameter		Unit	Sample		Measurement uncertainty*)
			EZU 06/19/1	EZU 06/19/2	
Phthalic acid esters (ZM-14)N)	DIBP	% (w/w)	< 0.0001	< 0.0001	–
	DBP		< 0.0001	< 0.0001	
	BBP		< 0.0001	< 0.0001	
	DEHP		< 0.0001	< 0.0001	

Notes:
Symbol „ < "means less than the limit of detection of the method used.
Annnotations:
*) Stated uncertainty is expressed as expanded combined uncertainty based on standard deviation multiplied by coverage factor ($k = 2$), defines an interval having a level of confidence of approximately 95 %.
N) Non accredited testing method.

Tested parameter		Unit	Sample		Measurement uncertainty*)
			EZU 06/19/3	EZU 06/19/4	
Phthalic acid esters (ZM-14)N)	DIBP	% (w/w)	< 0.0001	< 0.0001	–
	DBP		< 0.0001	< 0.0001	
	BBP		< 0.0001	< 0.0001	
	DEHP		< 0.0001	< 0.0001	

Notes:
Symbol „ < "means less than the limit of detection of the method used.
Annnotations:
*) Stated uncertainty is expressed as expanded combined uncertainty based on standard deviation multiplied by coverage factor ($k = 2$), defines an interval having a level of confidence of approximately 95 %.
N) Non accredited testing method.

4. Deviations from recorded testing procedures, additional information

None