ACCREDITED LABORATORY TEST REPORT ref. No. 472118404-01

Client:	Arka Sp. Z o.o. VAT reg. No.: PL6692224025
Address:	Ul. Ogrodowa 5, 76-004 Sianów, Poland
Samples:	Black EPDM sealing, white PTFE material, CW617N brass – samples description see page 2
Sample received on:	December 4, 2024
Tested:	January 2, 2025 – January 22, 2025
Report elaborated by:	MUDr. Beata Janoušková
Place and date of issue:	Zlín, on January 27, 2025

Dipl. Ing. Jiří Samsonek, Ph.D.
Head of Accredited Testing Laboratory

Sample description and identification:

Table I: Samples description and identification

ITC's identification number	Sample identification by client	Description of submitted sample
472118404/01	EPDM sealing, black colour	black rubber parts of dimensions (10x10x0,2) cm – see Fig. 1
472118404/02	PTFE material, white colour	white plastic parts of dimensions (10x10x0,5) cm – see Fig. 2
472118404/03	CW617N brass	metal parts of dimension (3x3x1) cm – see Fig. 3

Fig. 1: supplied sample No. 472118404/01

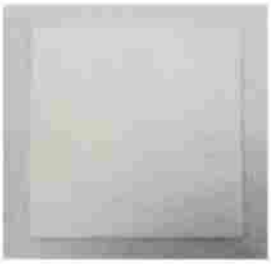

Fig. 2: supplied sample No. 472118404/02

Fig. 3: supplied sample No. 472118404/03

According to the client´s declaration, the supplied materials are the parts of the product **"Calido S30 ball valves"**.

Sampling method used:
The test sample was collected and supplied to the laboratory by the client. The laboratory is not responsible for this way of sampling. The results apply to the sample received.

Work requested:
Evaluation of selected hygienic parameters of the sample according to the Decree of Czech Health Ministry No. 409/2005 Coll. *Hygienic requirements for articles intended to come into contact with water and for the water treatment*, as amended by the Decree of the Czech Health Ministry No. 446/2021 Coll., in accordance with the law No. 258/2000 Coll. on Public Health Protection, as amended, for contact with drinking water.

Testing method used:
1. Identification and determination of low-molecular compounds by TD-GC-MS according to IZP A-07-71.
2. Semiquantitative and quantitative determination of elements by XRF spektrometry according to IZP A-98-09.
3. Determination of elements by ICP-OES methods according to IZP A-06-61.
4. Sensory analysis – determination of threshold odour and flavour number according to ČSN EN 1622.
5. Measurement of colour by spectrophotometry according to IZP A-03-34 (ČSN EN ISO 7887).
6. Measurement of turbidity by nephelometry according to IZP A-03-34 (ČSN EN ISO 7027-1).
7. Determination of carbon content (TOC) by TOC analyzer according to IZP A-03-34 (ČSN EN 1484).
8. Chemical consumption of oxygen by permanganate by manganometry according to IZP A-03-34 (ČSN EN ISO 8467).
9. Determination of elements (Pb, Cd, Zn, Ba, Cu, Fe) by ICP-MS methods according to IZP A-10-97.

10. Identification and determination of selected primary aromatic amines by liquid chromatography with mass detection (LC-MS/MS) method according to IZP A-95-28.
11. Potenciometric determination of pH according to IZP A-03-34 (ČSN ISO 10523).
12. Determination of phenols content by photometric method according to IZP A-07-74.
13. Determination of polycyclic aromatic hydrocarbons (PAH) by liquid chromatography methods according to IZP A-03-34 (ČSN EN ISO 17993).

Where internal test procedures (IZP) are specified in the test methods used, the annex to the Accreditation Certificate shall indicate for each internal procedure the links to the standards on which the internal test procedure is based.

Test conditions:
Ad 1.:
The sample was thermally desorbed at 280 °C for 4 minutes and the evolved substances were determined using GC-MS method by comparing the obtained mass spectra with mass spectra from D-base; match of the MS spectra of found substances with standard MS spectra from D-base was in the range of 70-95 %.

Ad 3. The determination of lead and arsenic in the mass was carried out after sample acids mineralization.

Ad 4. – 13.:
The leachates of the supplied samples were prepared according to the internal regulation IZP A-03-34 according to the Czech Ministry of Health Decree No. 409/2005 Coll., annex 1 about hygienic requirements for products which come into the direct contact with drinking water and water treatment, as amended, under these conditions:
a) Sample preparation:
Slack water attack:
The samples were immersed into fresh tap water for (24 ± 0,5) hours at the temperature (23 ± 2) °C.
After that the water was removed.
Preliminary rinsing:
The samples were rinsed by tap water for 60 minutes ± 10 minutes with the stable flow – linear velocity 5 $cm.s^{-1}$ ± 2 $cm.s^{-1}$
After the rinsing the samples were rinsed with testing water that was used for leaching tests.
b) Leaching tests:

Number of the identical tested samples – except of sensory analysis:	2
Number of the tested sample for sensory analysis:	1
Migration ratio – material surface to testing water volume:	1 cm^2 : 1 cm^3
Testing water for leaching tests - except of sensory analysis:	demineralised water, conductivity < 0,10 mS/m
Testing water for determination of sensory analysis:	tap water
Number of following leaching test:	3
Leaching temperature:	23 °C ± 2 °C
Leaching time:	72 hours

The blank was done under the same conditions with the testing water without the tested sample.

Ad 4.:
Determination of sensory analysis: unforced choice, paired test, short method
number of assesors: 3
date of testing: January 13, 2025

Ad. 10.:
Quantification of PAAs listed in in entry 43 to Appendix 8 of Annex XVII to REACH (Regulation (EC) No. 1907/2006 of European Parliament and of Council), for which the limit in Annex II of Commission Regulation

(EU) 10/2011 is stated and PAAs for which the limit in Annex I of Commission Regulation (EU) 10/2011 is stated.

The laboratory is not responsible for information received from customer, which could have influence on the validity of the results. Further information required by the standard/standards and not given in this Test Report are available at a request at the Laboratory.

Testing laboratory:
Test no.: 1.- 13. Workplace no.: 1 - třída Tomáše Bati 299, Louky, 763 02 Zlín.

Test results:
Test results are listed in the following tables:

Sample No. 472118404/01 EPDM sealing, black colour (the part of the product "Calido S30 ball valves")

Table II: Determination of selected elements in the mass

Parameter	Unit	Result of measurement [1]	Uncertainty [2]
Pb - lead	mg/kg	< 20	-
Cd - cadmium	mg/kg	< 20	-
Ba - barium	mg/kg	< 150	-
Se - selenium	mg/kg	< 20	-
Hg - mercury	mg/kg	< 20	-
Sb - antimony	mg/kg	< 50	-
As - arsenic	mg/kg	< 20	-
Cr - chromium	mg/kg	< 20	-
Ni - nickel	mg/kg	< 20	-
V - vanadium	mg/kg	< 20	-
Sn - tin	mg/kg	< 50	-
Cu - copper	mg/kg	25	3
Fe - ferrum	mg/kg	49	5
Mn - manganese	mg/kg	< 20	-
Zn - zinc	mg/kg	> 300	-

Notes to the table II:
[1] symbol „<" means less than limit of quantification (LOQ) of the analytical method, symbol „>" means more than the highest calibration standard
[2] uncertainty type B, 10 rel. % from measured value

Evaluated parameters of the leachate prepared according to the annex No. 1 of the Decree of the Health Ministry No. 409/2005 Coll.

Table III: Evaluation of the 1st leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;1}$ [1]	Uncerta-inty [2]	$K_{0;1}$ [3]
		18404/01-A	18404/01-B			
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
Turbidity (nephelometry)	ZF_n	< 0,5	< 0,5	< 0,5	-	< 0,5
pH	-	6,2	6,3	6,3	0,2	5,8
TOC [4]	mg/l	1,72	1,74	1,73	0,11	< 0,60
$CHSK_{Mn}$ [5]	mg/l	0,44	0,38	0,41	0,07	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Zn	mg/l	0,27	0,28	0,28	0,03	< 0,01
Ba	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Cu	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Fe	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Phenols	mg/l	< 0,005	< 0,005	< 0,005	-	< 0,005
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
PAH [7]	µg/l	< 0,001	< 0,001	< 0,001	-	< 0,001
Benzo(a)pyrene	µg/l	< 0,0004	< 0,0004	< 0,0004	-	< 0,0004

Table IV: Evaluation of the 2nd leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;2}$ [1]	Uncerta-inty [2]	$K_{0;2}$ [3]
		18404/01-A	18404/01-B			
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
Turbidity (nephelometry)	ZF_n	< 0,5	< 0,5	< 0,5	-	< 0,5
pH	-	6,0	6,0	6,0	0,2	5,9
TOC [4]	mg/l	1,50	1,46	1,48	0,10	< 0,60
$CHSK_{Mn}$ [5]	mg/l	0,41	0,38	0,40	0,04	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90

Table IV: Evaluation of the 2nd leachate into the testing water after 72 hours - continuation

Parameter	Unit	Parallel leachate		$K_{72;2}$ [1]	Uncertainty [2]	$K_{0;2}$ [3]
		18404/01-A	18404/01-B			
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Zn	mg/l	0,09	0,09	0,09	0,01	< 0,01
Ba	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Cu	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Fe	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Phenols	mg/l	< 0,005	< 0,005	< 0,005	-	< 0,005
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
PAH [7]	µg/l	< 0,001	< 0,001	< 0,001	-	< 0,001
Benzo(a)pyrene	µg/l	< 0,0004	< 0,0004	< 0,0004	-	< 0,0004

Table V: Evaluation of the 3rd leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;3}$ [1]	Uncertainty [2]	$K_{0;3}$ [3]
		18404/01-A	18404/01-B			
Flavour	TFN [8]	< 1 [9]		< 1	-	< 1
Odour	TON [8]	< 1 [9]		< 1	-	< 1
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
Turbidity (nephelometry)	ZF_n	< 0,5	< 0,5	< 0,5	-	< 0,5
pH	-	5,8	5,8	5,8	0,2	5,9
TOC [4]	mg/l	0,99	1,01	1,00	0,07	< 0,60
$CHSK_{Mn}$ [5]	mg/l	0,28	0,31	0,30	0,04	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Zn	mg/l	0,05	0,06	0,06	0,02	< 0,01
Ba	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Cu	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Fe	mg/l	< 0,01	< 0,01	< 0,01	-	< 0,01
Phenols	mg/l	< 0,005	< 0,005	< 0,005	-	< 0,005

Table V: Evaluation of the 3rd leachate into the testing water after 72 hours - continuation

Parameter	Unit	Parallel leachate		$K_{72;3}$ [1]	Uncerta-inty [2]	$K_{0;3}$ [3]
		18404/01-A	18404/01-B			
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
PAH [7]	µg/l	< 0,001	< 0,001	< 0,001	-	< 0,001
Benzo(a)pyrene	µg/l	< 0,0004	< 0,0004	< 0,0004	-	< 0,0004

Notes to the tables III - V:

1) $K_{72;n}$ is the concentration of the analyte after 72 hours of leaching, expressed as an average value from two tested samples of parallel leachates after the subtraction of the blank value,
in the case of sensory analysis, $K_{72;3}$ is the concentration of the analyte after 72 hours of leaching, the blank values are not subtracted in case of: flavour, odour, pH and TOC
2) the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%
3) $K_{0;n}$ is the concentration of the analyte after 72 hours of leaching in the blank, expressed as an average value from two tested parallels leachates,
in the case of sensory analysis, $K_{0;3}$ is the concentration of the analyte after 72 hours of leaching in the blank
4) TOC = total organic carbon
5) $CHSK_{Mn}$ = Permanganate Index
6) PAA = primary aromatic amines;
these PAAs were screened by LC-MS/MS method: CAS No. 92-67-1, CAS No. 92-87-5, CAS No. 95-69-2, CAS No. 91-59-8, CAS No. 97-56-3, CAS No. 99-55-8, CAS No. 106-47-8, CAS No. 615-05-4, CAS No. 101-77-9, CAS No. 91-94-1, CAS No. 119-90-4, CAS No. 119-93-7, CAS No. 838-88-0, CAS No. 120-71-8, CAS No. 101-14-4, CAS No. 101-80-4, CAS No. 139-65-1, CAS No. 95-53-4, CAS No. 95-80-7, CAS No. 137-17-7, CAS No. 90-04-0, CAS No. 60-09-3, CAS No. 108-45-2, CAS No. 80-08-0, CAS No. 88-68-6, CAS No. 106246-33-7 with limit of detection (LOD) of individual PAA = 0,002 mg/l
and detection of presence of selected other PAAs: CAS No. 95-68-1, CAS No. 87-62-7, CAS No. 2243-62-1, CAS No. 62-53-3, CAS No. 95-51-2, CAS No. 108-42-9, CAS No. 106-49-0, CAS No. 106-50-3, CAS No. 823-40-5, CAS No. 121-69-7, CAS No. 6582-52-1, CAS No. 1208-52-2, CAS No. 6358-64-1, CAS No. 95-82-9, CAS No. 94-70-2, CAS No. 2835-68-9, CAS No. 81-16-3, CAS No. 88-44-8, CAS No. 49564-57-0, CAS No. 95-23-8, CAS No. 132-32-1, CAS No. 95-54-5, CAS No. 67014-36-2, CAS No. 156-43-4, CAS No. 90-41-5 with limit of detection (LOD) of individual PAA = 0,005 mg/l
7) PAH = Polycyclic aromatic hydrocarbon, sum of benzo(b)fluorantene, benzo(k)fluorantene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene
8) TFN = threshold flavour number; TON = threshold odour number
9) number of the tested sample for sensory analysis is 1

symbol „<" means less than limit of quantification (LOQ) of the analytical method

Table VI: Summary results of evalution 1st – 3rd leachate into the testing water at (23±2) °C

Parameter	Unit	$K_{72;1}$ [1]	$K_{72;2}$ [1]	$K_{72;3}$ [1]	Limit [2]
Flavour	TFN [7]	-	-	**< 1**	acceptable (max. 2)
Odour	TON [7]	-	-	**< 1**	max. 2
Colour	mgPt/l	< 5	< 5	**< 5**	max. 20
Turbidity (by nephelometry)	ZF_n	< 0,5	< 0,5	**< 0,5**	max. 5
pH	-	6,3	6,0	**5,8**	-
TOC [3]	mg/l	1,73	1,48	**1,00**	max. 1,0
$CHSK_{Mn}$ [4]	mg/l	0,41	0,40	**0,30**	max. 0,90
Pb	µg/l	< 0,90	< 0,90	**< 0,90**	max. 1,0
Cd	µg/l	< 0,20	< 0,20	**< 0,20**	max. 0,50
Zn	mg/l	0,28	0,09	**0,06**	max. 0,30 [8]
Ba	mg/l	< 0,01	< 0,01	**< 0,01**	max. 0,07 [8]
Cu	mg/l	< 0,01	< 0,01	**< 0,01**	max. 0,10
Fe	mg/l	< 0,01	< 0,01	**< 0,01**	max. 0,02
Phenols	mg/l	< 0,005	< 0,005	**< 0,005**	max. 0,005 [8]
Sum of PAAs [5] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	**no PAA detected**	∑ max. 0,01 [8]
Sum of PAAs [5] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	**no PAA detected**	
PAH [6]	µg/l	< 0,001	< 0,001	**< 0,001**	max. 0,010
Benzo(a)pyrene	µg/l	< 0,0004	< 0,0004	**< 0,0004**	max. 0,0010

Notes to the table VI:

1) $K_{72;n}$ is the concentration of the analyte after 72 hours of leaching, expressed as an average value from the dual samples of parallel leachates after the subtraction of the blank value,
in the case of sensory analysis, $K_{72;3}$ is the concentration of the analyte after 72 hours of leaching, the blank values are not subtracted in case of: odour, flavour, pH and TOC;
symbol „<" means less than limit of quantification (LOQ) of the analytical method
2) 10% of the hygienic limit for drinking water according to the Czech Ministry of Health Decree No. 252/2004 Coll., as amended, annex 1;
according to the article 3 paragraph 2 of the Decree of the Czech Health Ministry No. 409/2005 Coll., as amended, the limit valid for TOC is 20 % of the hygienic limit, for $CHSK_{Mn}$ is 30 % of the hygienic limit, for sensorial properties are valid the hygienic limits of the above mentioned Decree;
limits are valid for parameter values of the third leachate $K_{72;3}$
3) TOC = total organic carbon
4) $CHSK_{Mn}$ = Permanganate Index Method

5) PAA = primary aromatic amines;
these PAAs were screened by LC-MS/MS method: CAS No. 92-67-1, CAS No. 92-87-5, CAS No. 95-69-2, CAS No. 91-59-8, CAS No. 97-56-3, CAS No. 99-55-8, CAS No. 106-47-8, CAS No. 615-05-4, CAS No. 101-77-9, CAS No. 91-94-1, CAS No. 119-90-4, CAS No. 119-93-7, CAS No. 838-88-0, CAS No. 120-71-8, CAS No. 101-14-4, CAS No. 101-80-4, CAS No. 139-65-1, CAS No. 95-53-4, CAS No. 95-80-7, CAS No. 137-17-7, CAS No. 90-04-0, CAS No. 60-09-3, CAS No. 108-45-2, CAS No. 80-08-0, CAS No. 88-68-6, CAS No. 106246-33-7 with limit of detection (LOD) of individual PAA = 0,002 mg/l and detection of presence of selected other PAAs: CAS No. 95-68-1, CAS No. 87-62-7, CAS No. 2243-62-1, CAS No. 62-53-3, CAS No. 95-51-2, CAS No. 108-42-9, CAS No. 106-49-0, CAS No. 106-50-3, CAS No. 823-40-5, CAS No. 121-69-7, CAS No. 6582-52-1, CAS No. 1208-52-2, CAS No. 6358-64-1, CAS No. 95-82-9, CAS No. 94-70-2, CAS No. 2835-68-9, CAS No. 81-16-3, CAS No. 88-44-8, CAS No. 49564-57-0, CAS No. 95-23-8, CAS No. 132-32-1, CAS No. 95-54-5, CAS No. 67014-36-2, CAS No. 156-43-4, CAS No. 90-41-5 with limit of detection (LOD) of individual PAA = 0,005 mg/l

6) PAH = Polycyclic aromatic hydrocarbon, sum of benzo(b)fluorantene, benzo(k)fluorantene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene

7) TFN = threshold flavour number; TON = threshold odour number

8) 10% of the hygienic limit for drinking water according to the Czech Ministry of Health Decree No. 409/2005 Sb., as amended; for PAA are valid the hygienic limit of the above mentioned Decree; limits are valid for parameter values of the third leachate $K_{72;3}$

Sample No. 472118404/02 PTFE material, white colour (the part of the product "Calido S30 ball valves")

Table VII: Determination of selected elements in the mass

Parameter	Unit	Result of measurement [1)]	Uncertainty
Pb - lead	mg/kg	< 20	-
Cd - cadmium	mg/kg	< 20	-
Ba - barium	mg/kg	< 150	-
Se - selenium	mg/kg	< 20	-
Hg - mercury	mg/kg	< 20	-
Sb - antimony	mg/kg	< 50	-
As - arsenic	mg/kg	< 20	-
Cr - chromium	mg/kg	< 20	-
Ni - nickel	mg/kg	< 20	-
V - vanadium	mg/kg	< 20	-
Sn - tin	mg/kg	< 50	-
Cu - copper	mg/kg	< 20	-
Fe - ferrum	mg/kg	< 20	-
Mn - manganese	mg/kg	< 20	-
Zn - zinc	mg/kg	< 20	-

Notes to the table VII:
[1] symbol „<" means less than limit of quantification (LOQ) of the analytical method

Table VIII: Test results of substances identifiable by TD-GC-MS method

Identified compound [1] – chemical name	CAS No.	FCM No.	Comment
Oleamide	301-02-0	335	substance listed in Annex I, with no SML

Notes to the table VIII:
[1] identified substances can be either original ones, presented in the sample, or it can be degradation products; match of the MS spectra of found substances with standard MS spectra from D-base are in the range of 70-95 %

Abbreviations used:
CAS No. = Unique numerical identifier assigned by the Chemical Abstracts Service
FCM No. = Food Contact Material number
Annex I = Annex I of Commission Regulation (EU) 10/2011 as amended – list of authorised substances
SML = Specific Migration Limit

Evaluated parameters of the leachate prepared according to the annex No. 1 of the Decree of the Health Ministry No. 409/2005 Coll.

Table IX: Evaluation of the 1st leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;1}$ [1]	Uncerta-inty [2]	$K_{0;1}$ [3]
		18404/02-A	18404/02-B			
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
pH	-	6,2	6,2	6,2	0,2	5,8
TOC [4]	mg/l	< 0,60	< 0,60	< 0,60	-	< 0,60
$CHSK_{Mn}$ [5]	mg/l	0,13	< 0,10	- [9]	- [9]	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected

Table X: Evaluation of the 2nd leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;2}$ [1]	Uncertainty [2]	$K_{0;2}$ [3]
		18404/02-A	18404/02-B			
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
pH	-	5,9	5,9	5,9	0,2	5,9
TOC [4]	mg/l	< 0,60	< 0,60	< 0,60	-	< 0,60
$CHSK_{Mn}$ [5]	mg/l	< 0,10	< 0,10	< 0,10	-	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected

Table XI: Evaluation of the 3rd leachate into the testing water after 72 hours

Parameter	Unit	Parallel leachate		$K_{72;3}$ [1]	Uncertainty [2]	$K_{0;3}$ [3]
		18404/02-A	18404/02-B			
Flavour	TFN [7]	< 1 [8]		< 1	-	< 1
Odour	TON [7]	< 1 [8]		< 1	-	< 1
Colour	mgPt/l	< 5	< 5	< 5	-	< 5
pH	-	5,8	5,8	5,8	0,2	5,9
TOC [4]	mg/l	< 0,60	< 0,60	< 0,60	-	< 0,60
$CHSK_{Mn}$ [5]	mg/l	< 0,10	< 0,10	< 0,10	-	-
Pb	µg/l	< 0,90	< 0,90	< 0,90	-	< 0,90
Cd	µg/l	< 0,20	< 0,20	< 0,20	-	< 0,20
Sum of PAAs [6] (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected
Sum of PAAs [6] (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	no PAA detected	-	no PAA detected

Notes to the tables IX - XI:

1) $K_{72;n}$ is the concentration of the analyte after 72 hours of leaching, expressed as an average value from two tested samples of parallel leachates after the subtraction of the blank value,
in the case of sensory analysis, $K_{72;3}$ is the concentration of the analyte after 72 hours of leaching, the blank values are not subtracted in case of: flavour, odour, pH and TOC
2) the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%
3) $K_{0;n}$ is the concentration of the analyte after 72 hours of leaching in the blank, expressed as an average value from two tested parallels leachates,

in the case of sensory analysis, $K_{0;3}$ is the concentration of the analyte after 72 hours of leaching in the blank

4) TOC = total organic carbon

5) $CHSK_{Mn}$ = Permanganate Index

6) PAA = primary aromatic amines;
these PAAs were screened by LC-MS/MS method: CAS No. 92-67-1, CAS No. 92-87-5, CAS No. 95-69-2, CAS No. 91-59-8, CAS No. 97-56-3, CAS No. 99-55-8, CAS No. 106-47-8, CAS No. 615-05-4, CAS No. 101-77-9, CAS No. 91-94-1, CAS No. 119-90-4, CAS No. 119-93-7, CAS No. 838-88-0, CAS No. 120-71-8, CAS No. 101-14-4, CAS No. 101-80-4, CAS No. 139-65-1, CAS No. 95-53-4, CAS No. 95-80-7, CAS No. 137-17-7, CAS No. 90-04-0, CAS No. 60-09-3, CAS No. 108-45-2, CAS No. 80-08-0, CAS No. 88-68-6, CAS No. 106246-33-7 with limit of detection (LOD) of individual PAA = 0,002 mg/l
and detection of presence of selected other PAAs: CAS No. 95-68-1, CAS No. 87-62-7, CAS No. 2243-62-1, CAS No. 62-53-3, CAS No. 95-51-2, CAS No. 108-42-9, CAS No. 106-49-0, CAS No. 106-50-3, CAS No. 823-40-5, CAS No. 121-69-7, CAS No. 6582-52-1, CAS No. 1208-52-2, CAS No. 6358-64-1, CAS No. 95-82-9, CAS No. 94-70-2, CAS No. 2835-68-9, CAS No. 81-16-3, CAS No. 88-44-8, CAS No. 49564-57-0, CAS No. 95-23-8, CAS No. 132-32-1, CAS No. 95-54-5, CAS No. 67014-36-2, CAS No. 156-43-4, CAS No. 90-41-5 with limit of detection (LOD) of individual PAA = 0,005 mg/l

7) TFN = threshold flavour number; TON = threshold odour number

8) number of the tested sample for sensory analysis is 1

9) average value and uncertainty are not expressed because one of the results is below than limit of quantification (LOQ) of the analytical method

symbol „<" means less than limit of quantification (LOQ) of the analytical method

Table XII: Summary results of evalution 1st – 3rd leachate into the testing water at (23±2) °C

Parameter	Unit	$K_{72;1}$ 1)	$K_{72;2}$ 1)	$K_{72;3}$ 1)	Limit 2)
Flavour	TFN 6)	-	-	**< 1**	acceptable (max. 2)
Odour	TON 6)	-	-	**< 1**	max. 2
Colour	mgPt/l	< 5	< 5	**< 5**	max. 20
pH	-	6,2	5,9	**5,8**	-
TOC 3)	mg/l	< 0,60	< 0,60	**< 0,60**	max. 1,0
$CHSK_{Mn}$ 4)	mg/l	0,13; < 0,10	< 0,10	**< 0,10**	max. 0,90
Pb	µg/l	< 0,90	< 0,90	**< 0,90**	max. 1,0
Cd	µg/l	< 0,20	< 0,20	**< 0,20**	max. 0,50
Sum of PAAs 5) (LOD = 0,002 mg/l)	mg/l	no PAA detected	no PAA detected	**no PAA detected**	∑ max. 0,01 7)
Sum of PAAs 5) (LOD = 0,005 mg/l)	mg/l	no PAA detected	no PAA detected	**no PAA detected**	

Notes to the table XII:

1) $K_{72;n}$ is the concentration of the analyte after 72 hours of leaching, expressed as an average value from the dual samples of parallel leachates after the subtraction of the blank value,
in the case of sensory analysis, $K_{72;3}$ is the concentration of the analyte after 72 hours of leaching, the blank values are not subtracted in case of: odour, flavour, pH and TOC;

symbol „<" means less than limit of quantification (LOQ) of the analytical method

2) 10% of the hygienic limit for drinking water according to the Czech Ministry of Health Decree No. 252/2004 Coll., as amended, annex 1;
according to the article 3 paragraph 2 of the Decree of the Czech Health Ministry No. 409/2005 Coll., as amended, the limit valid for TOC is 20 % of the hygienic limit, for $CHSK_{Mn}$ is 30 % of the hygienic limit, for sensorial properties are valid the hygienic limits of the above mentioned Decree;
limits are valid for parameter values of the third leachate $K_{72;3}$

3) TOC = total organic carbon

4) $CHSK_{Mn}$ = Permanganate Index Method

5) PAA = primary aromatic amines;
these PAAs were screened by LC-MS/MS method: CAS No. 92-67-1, CAS No. 92-87-5, CAS No. 95-69-2, CAS No. 91-59-8, CAS No. 97-56-3, CAS No. 99-55-8, CAS No. 106-47-8, CAS No. 615-05-4, CAS No. 101-77-9, CAS No. 91-94-1, CAS No. 119-90-4, CAS No. 119-93-7, CAS No. 838-88-0, CAS No. 120-71-8, CAS No. 101-14-4, CAS No. 101-80-4, CAS No. 139-65-1, CAS No. 95-53-4, CAS No. 95-80-7, CAS No. 137-17-7, CAS No. 90-04-0, CAS No. 60-09-3, CAS No. 108-45-2, CAS No. 80-08-0, CAS No. 88-68-6, CAS No. 106246-33-7 with limit of detection (LOD) of individual PAA = 0,002 mg/l and detection of presence of selected other PAAs: CAS No. 95-68-1, CAS No. 87-62-7, CAS No. 2243-62-1, CAS No. 62-53-3, CAS No. 95-51-2, CAS No. 108-42-9, CAS No. 106-49-0, CAS No. 106-50-3, CAS No. 823-40-5, CAS No. 121-69-7, CAS No. 6582-52-1, CAS No. 1208-52-2, CAS No. 6358-64-1, CAS No. 95-82-9, CAS No. 94-70-2, CAS No. 2835-68-9, CAS No. 81-16-3, CAS No. 88-44-8, CAS No. 49564-57-0, CAS No. 95-23-8, CAS No. 132-32-1, CAS No. 95-54-5, CAS No. 67014-36-2, CAS No. 156-43-4, CAS No. 90-41-5 with limit of detection (LOD) of individual PAA = 0,005 mg/l

6) TFN = threshold flavour number; TON = threshold odour number

7) 10% of the hygienic limit for drinking water according to the Czech Ministry of Health Decree No. 409/2005 Sb., as amended; for PAA are valid the hygienic limit of the above mentioned Decree;
limits are valid for parameter values of the third leachate $K_{72;3}$

Sample No. 472118404/03 CW617N brass (the part of the product "Calido S30 ball valves")

Table XIII: Determination of lead and arsenic content in the mass after sample mineralization

Parameter	Unit	Result of measurement	Uncertainty 1)
Pb content	hm. %	1,95	0,21
As content	hm. %	0,0073	0,0010

Notes to the table XIII:

1) the reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%

Dipl. Ing. Daniel Vít
Head of the analytical and microbiology laboratory