

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju Tel: +386(0)2 790 00 60, www.ikema.si

ELABORATE on collective examination of laboratory samples: 2024-3112, 2024-3113, 2024-3114, 2025-0114. 2025-0115, 2025-0116, 2025-0117, 2025-0118, 2025-0119, 2025-0120

OPČINSKI SUD u Novom Zagrebu

Jakuševec landfill site

Poročilo št.:	P 1-1/2025
Datum poročila:	23.10.2025



Subject of analysis

Waste - Jakuševec landfill site

Contractor:

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc

na Dravskem polju

Registration code

P 1-1/2025

Report offer No:

P 153/2024

Customer or Obligor:

OPČINSKI SUD u Novom Zagrebu , Saimišna cesta 12

10010 Zagreb

Responsible person

for the production of the report:

Nataša Kante Flanjak dipl.ing kem.teh.

1

Collaborators:

Sampling:

Rene Ferk dipl. Ekolog naravovarstvenik, Andrej Vek teh.,

Matic Borštnar Lampreht dipl. Ekolog naravovarstvenik

(UN)

Measurements:

mag. Matjaž Cenčič dipl.inž.

Nataša Kante Flanjak dipl.inž kem.tehnol.

Andreja Bezjak inž.kem. tehnol. Andrej Cenčič dipl.inž.kem.tehnol Tjaša Cenčič univ. dipl.biol. Barbara Sitar mag.inž.kem.teh. Lilijana Milošič dipl.inž.kem.tehnol.

Laura Kovačec mag. kem. Petra Bukovec dipl.kem.(UN) Jožica Sitar dipl.inž.kem.tehnol. Manca Bauman dipl.biol.(UN)

Lovrenc na Dravskem polju, 23.10.2025

IKEMA d.o.o.
Technical Manager
Andrej Cenčič dipl.ing.kem.teh.

12 J



TABLE OF CONTENTS

Introductory page of the elaborate	Page 1 of 75	
Description page	Page 2 of 75	
Table of contents	Page 3 od 75	ELABORATE
Introduction	Page 4 od 75	
Introduction for ANNEXES	Page 5 od 75	
Test report 2024-3112	Page 6 do 75	
Test report 2024-3113	Page 14 do 75	
Test report 2024-3114	Page 20 do 75	
Test report 2025-0114	Page 26 do 75	
Test report 2025-0115	Page 34 do 75	ANNEXES
Test report 2025-0116	Page 40 do 75	
Test report 2025-0117	Page 48 do 75	
Test report 2025-0118	Page 54 do 75	
Test report 2025-0119	Page 60 do 75	
Test report 2025-0120	Page 66 do 75	



1. Introduction

On behalf of the Opčinski sud u Novom Zagrebu, we carried out sampling and analysis of waste at the inactive part of the Jakuševec landfill site. Core sampling was carried out using a core drill at two points on the landfill to a depth of 22m.

Landfill gases were also measured at two measurement sites (CPT1 and CPT2).

The sampling was carried out on two different days (12.12.2024 and 24.1.2024) due to a breakdown of the drilling machine.



Annexes:

- -Sampling Plan No. 2024-3112, 2024-3113, 2024-3114, 2024-0114-2025-0115, 2025-0116-2025-0120
- Sampling report 2024-3112, 2024-3113, 2024-3114, 2025-0114, 2025-0115, 2025-0116, 2025-0117, 2025-0118, 2025-0119, 2025-0120
- Report of analysis: 2024-3112, 2024-3113, 2024-3114, 2025-0114, 2025-0115, 2025-0116, 2025-0117, 2025-0118, 2025-0119, 2025-0120, 2025-141/1 in 2025-141/2



ANNEXES



Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.lkema.sl



Rezultati označeni z# oz neakreditirano se nanašajo na neakreditirano dejavnost

TEST REPORT

Report No: 2024-3112

General information:

Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by:

Andrej Cenčič

No. Offers:

P 153/2024

Sample information:

Subscription code:

Zagreb Landfill, 3,5 - 8m

Description of the sample:

Zagreb Landfill, 3,5 - 8m

Sampling time:

12.12.2024

Sample status:

The sample meets the admission criteria

Date of sample collection:

12.12.2024

Date of report:

28.02.2025

Sample ID:

Lab.No.: 2024 - 3112

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	Result		measurement method uncertainty	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.	,	552		CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	08.01.2025 08.01.2025
2. Parameter-WASTE	Unit	limit values	Result		measurement method uncertainty	beginning / end analyses
Total organic carbon-TOC	% d.m.		8,9		SIST EN 15936:2022, Method B	30.01.2025 01.02.2025
Net Calorific value	kJ/kg d.m	.,	<6000	#	SIST-TS-CEN/TS 16023:2014	31.12.2024 31.12.2024
Gross Calorific value	kJ/kg d.m.	-	<6000	#	SIST-TS-CEN/TS 16023:2014	31.12.2024 31.12.2024
pH (2.)	/		9,0		EN ISO 10390:2022, SIST EN 16179:2013	28.01.2025 28.01.2025
Dry matter	%		77,35		EN 15934:2012, Method A	17.12.2024 17.12.2024
Loss on ignition	% d.m.		16,49		SIST EN 15935;2021	10.01.2025 10.01.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		<5		ONORM S 2027-4:2012	17.12.2024 27.12.2024
Volatile substances	% d.m.		16,9		ISO 22167:2021 mod.	25.02.2025 25.02.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0060, F:+386(0)2 7900061, E:Info@ikema.si, VAT identification number: Si99144620, business account number: Si56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values	Result	measurement method uncertainty	beginning / end analyses
Waste sampling	1		1	SIST EN 14899:2006	12.12.2024 12.12.2024

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample in water, T=21.3°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts removed before the analysis (ut%=29.27%).

Remark

The test results refer to the sampled population as defined in Sampling Report No 2024-3112, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by:Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.





Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

SAMPLING PLAN - WASTE

In accordance with SIST EN 14899:2006, Annex A, Table A.1

GENERAL INFORMATION 2024-3112-2024-3114					
The sampling plan was made by: ing. Andrej Cenčič	For the purpose of: Analysis of waste Jakuševec	in odlagalište			
Waste holder/Company:	The producer of the waste:				
Odlagalište otpada Jakuševec	Odlagalište otpada Jakuševec				
Sajmišna cesta 12,	Sajmišna cesta 12,				
10010, Zagreb,	10010, Zagreb,				
Hrvatska	Hrvatska				
Other involved parties: g. Gabrovšek					
The sampling will be carried out by IKEMA d. o. o.	Name of the sampler: mag. Matjaž Ce	nčič, Andrej Cenčič			
THE PURPOSE OF THE SAMPLING/SAMPLING OBJECTIVE: sampling of predrilled core samples from the body of					
landfill in Jakuševec.		<u> </u>			
SAMPLING APPROACH: probabilisticen / probabilistic					
MATERIAL:	I I C				
Core samples from landfill.	Location:				
	Odlagalište otpada Jakuševec Sajmišna cesta 12,				
	10010, Zagreb,				
	Hrvatska				
How the waste is produced:					
By disposing of waste material.					
Waste generation process/activity: compacting					
Specifies the properties and contents to be determined: ZAGREBU)	parameters requested by client (OPCII	NSKI SUD U NOVOM			
SAMPLING METHOD:					
Specify the detailed sampling location: sampling location	determent by client				
Define sub-population: core sample from a pile					
Define the sampling location and points: location of core	samples determent by client				
Specify the date and time of sampling: 12 dec. 2025					
Identify the people who will be present (note names and	addresses): mag. Matjaž Cenčič, dr.sc.	Željko Lebo,			
dipl.ing.grad.,					
Specify sampling techniques (CEN/TR 15210-2): collecti		-			
Specify the equipment pedološka sonda, lopatica / soil p	probe, hand shovel				
Use of rented equipment: YES⊠		NO			
Verification method : /	<u> </u>				
Specifies the number of increments/samples to be taken					
Determine the increment/sample size (CEN/TR 1510-1):					
Give the requirements for field determinations (meas	surements): determining GPS coordinate	tes if sampling site,			
photo					
Determine how the samples are to be labelled: v : procedures IKEMA d. o. o.	skladu z postopki IKEMA d. o. o. / in	accordance with the			
Set out instructions for safe working: general guidance	e, protection of hands and eyes with gla	asses, suitable			
footwear. High visibility jacket					
SUBSAMPLING: ne / no					
Detailed procedures (CEN/TR 15310-3):					
Core sample will be split in separate samples (about eve	ry 4m will be one sample).				

PACKAGING, PRESERVATION, STORAGE AND REQUIREMENTS DURING TRANSPORT (CEN/TR 15310-4):

Packaging: PE bag,

Preservation: ni / no preservation

Storage: hladilnica laboratorija podjetja IKEMA d. o. o. / cold room of company IKEMA d. o. o.

Transport: prtfjažnik osebnega avtomobilla / the trunk of passenger car

ANALYTICAL LABORATORY accepting the sample: IKEMA d. o. o.

Date of sample acceptance: 12.12.2024

HISTORY OF THE DESIGNATION OF TH

Sampling location (source: Google earth)









SLOVENSKA AKREDITACIJA SIST EN ISO/IEC 17025 LP-048

Rezultati označeni z # oz **nealweditirano** se nanašajo na neakreditirano dejavnost

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

WASTE SAMPLING RECORD

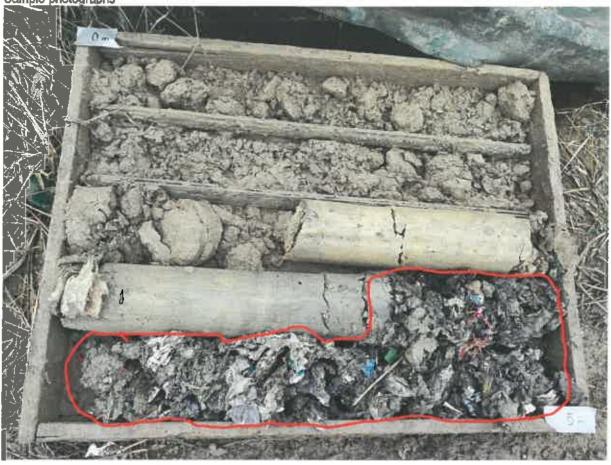
In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2	024-3112								
BASIC DATA									
Client Sample code: /									
Sample ID: Lab no.: 2024	J -31 12								
Date and time of sampling: 12.12.2024 from 9:30 to 11:30									
Persons present: dr.sc. Ž	eljko Lebo, dipl.ing.građ.								
GENERAL INFORMATION	ON				_				
Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb									
The waste producer: Odla	agalište otpada Jakuševec, Sajm	išna	cesta 12, 10010, Zagreb,	Irv	atska				
Sampling location: Odlag									
Sampling sub-location: sp	oot sampling at the core drilling s	ite							
Carried out by: IKEMA d.	o. o., Lovrenc na Dravskem polje	u 4,	2324 Lovrenc na Dr. polju						
Sampler: ing. Andrej Cen	cic, mag. Matjaz Cencic								
SAMPLING OBJECT - W	ASTE DATA								
Sample population: core s	sample								
Waste number: /									
Type of waste: deposited	waste on landfill								
Description of the samp	ile:								
Colour:									
Smell: ☐strong ☑weak	without ✓ odour								
	53 444								
Grain size: Uniform size	: 🔀 different sizes								
Estimated majeture conta	Takimatad maiatuwa aaatauti 00 000								
Estimated moisture content: 20-30%									
☐ liquid	inhomogeneous	ТГ] in pleces	Г	suspension				
densely liquid/pasty	multiple aggregate layers	╁┾	grainy	Hŧ	emulsion				
sludgy	⊠ moist	厅	in powder form	庁	dispersion				
⊠ solid	☐ dry		hard	Ī					
homogeneous	dusting		hygroscopic						
					<u> </u>				
Additional description:									
Different layers easily identif	ind in the care comples								
Dillorelit layers easily lucitui	ieu ili ilie core saliipies.								
Grain size range: 0,01-80mm									
Density or bulk density: /									
Amount of waste to be sampled: about 45L									
Geometric similarity of waste	5.								
cone (V=1/3πr² .v) 🖂 (r (V=	: πr² .v/2)	c)	other				
SAMPLING METHODOLOG									
	opulation or uniform sampling: co	ore s	sample						
Accessibility: Accessible									
(access problems affecting the area									
Location and sampling po	<u>inis:</u> 5069428,1900 E:463103,5360								
Cananina acaminates	PURDAJE JOHN FINESANS ESEC								

Sampling approach: Probabilistic judgemental judgemen
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 4m will be one sample).
This sample is depth from 3,5 to 8m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO
Verification method: /
Number of increments: 1
The amount of each increment: 45L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
BTEX VOC Total Hydrocarbons PAH
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☐ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration not preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ☑ car trunk ☐ Cooling bag ☐ Other
T _ F C C C T _ C C C C C F C C C C C C C C C C C C C
Tank = 5.5 °C. Floor = 5.6 °C. EQUIDMENT ID. I- 1930
T _{zsč} .= 5,5 °C T _{konč} .= 6,8 °C Equipment ID: I-185D DEVIATION FROM THE SAMPLING PLAN: YES \(\text{NO} \)
DEVIATION FROM THE SAMPLING PLAN: YES NO 🗵
Laid 1)1 Invite /
DEVIATION FROM THE SAMPLING PLAN: YES NO 🗵
DEVIATION FROM THE SAMPLING PLAN: YES NO 🗵
Description of the deviation: /
Description of the deviation: / WEATHER CONDITIONS
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C
Description of the deviation: / WEATHER CONDITIONS
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Scloudy Trainy snow other (dry and cold)
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy Trainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy Trainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy Trainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy Trainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy Trainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: / WEATHER CONDITIONS Air temperature: 4°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024
Description of the deviation: Description of the deviation:
Description of the deviation: WEATHER CONDITIONS
Description of the deviation: Description of the deviation: Description of the deviation:
Description of the deviation: Description of the deviation: Description of the deviation:

Date of report: 12.12.2024

Sample photographs









Pages 4/4



2324 Lovrenc na Dravskem polju

www.ikema.si



Rezultati označení z # oz neokrediti rano se nanašajo na neakreditirano dejavnost

TEST REPORT

Report No: 2024-3113

General information:

Waste analysis Name:

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb Client:

Sampled by: Andrej Cenčič No. Offers: P 153/2024

Sample information:

Zagreb Lanfili, 8 - 12m Subscription code: Description of the sample: Zagreb Landfill, 8 - 12m

Sampling time: 12.12.2024

Sample status: The sample meets the admission criteria

Date of sample collection: 12.12.2024 Date of report: 28.02.2025

Sample ID: Lab.No.: 2024 - 3113

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result		measurement	method	beginning /
					uncertainty		end
							analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		754			CEN/TR 16192:2020, SIST EN	09.01.2025
						12457-4,SIST EN 1484:1998	09.01.2025
2. Parameter-WASTE	Unit	limit values	Result		measurement	method	beginning /
					uncertainty		end
							analyses
Total organic carbon-TOC	% d.m.		5,6			SIST EN 15936:2022, Method B	30.01.2025
							01.02.2025
Net Calorific value	kJ/kg d.m.		<6000	#		SIST-TS-CEN/TS 16023:2014	31.12.2024
							31.12.2024
Gross Calorific value	kJ/kg d.m.		<6000	莽		SIST-TS-CEN/TS 16023:2014	31.12.2024
11781	4		0.4			EN IOO 40000 DOOR CIET EN	31.12.2024
pH (2.)	1		9,1			EN ISO 10390:2022, SIST EN 16179:2013	28.01.2025 28.01.2025
Dry matter	%		80,24			EN 15934:2012, Method A	17.12.2024 17.12.2024
Loss on ignition	% d.m.		12,76			SIST EN 15935:2021	10.01.2025 10.01.2025
AT4 - Biological stability (3.)	mgO2/g		<5			ONORM S 2027-4:2012	17.12.2024
7.14 - Diological dability (0.)	d.m.		-0			OTTOTALL OFFICE AUTOMATICALLY	27.12.2024
Volatile substances	% d.m.		13,3			ISO 22167:2021 mod.	25.02.2025
							25.02.2025

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

7:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values Result	rneasurement method uncertainty	beginning / end analyses
Waste sampling	l .	1	SIST EN 14899:2006	12.12.2024 12.12.2024

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample in water, T=21,5°C
 (3.) The analysis is carried out on a previously frozen sample, thanked for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts removed before analysis (ut%=15.51%).

Remark:

The test results refer to the sampled congliction as defined in Sampling Report No. 2024-3113, which includes all sampling data and is an annex to the Test Report. Any additional information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flaniak Dipl.Eng.Chem.Technol.







Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si Rezultati označení z # oz neakreditírano se nanašajo na neakreditírano dejavnost

WASTE SAMPLING RECORD

in accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2024-3113							
BASIC DATA	024-3113						
Client Sample code: /							
Sample ID: Lab no.: 2024	2112		<u> </u>	_			
Date and time of sampling: 12.12.2024 from 9:30 to 11:30							
Persons present: dr.sc. Željko Lebo, dipl.ing.građ.							
GENERAL INFORMATIO							
	NOVOM ZAGREBU, Turinina ul		111 41				
	agalište otpada Jakuševec, Sajmi	sna cesta 12, 10010, Z	agreb, Hrvatska				
Sampling location: Odlag							
	oot sampling at the core drilling si						
	o. o., Lovrenc na Dravskem polju	ı 4, 2324 Lovrenc na Dr	r. polju				
Sampler: ing. Andrej Cen							
SAMPLING OBJECT - W							
Sample population: core s	sample						
Waste number: /							
Type of waste: deposited							
Description of the samp	le:						
Colour:							
Smell: ☐strong ⊠weak							
	NZ Provide to						
Grain size: Uniform size	a imerent sizes						
	-t- 20 200/						
Estimated moisture conte	Estimated moisture content: 20-30%						
☐ liquid	. ☑ inhomogeneous	in pieces	suspension				
densely liquid/pasty	multiple aggregate layers	grainy	emulsion				
sludgy	moist market	in powder form	dispersion				
X solid	dry	hard					
homogeneous	dusting	hygroscopic					
Additional description:							
Different layers easily identif	Different layers easily identified in the core samples.						
0 1 1 0 0 1 0 0							
Grain size range: 0,01-80mm							
Density or bulk density: /							
Amount of waste to be sampled: about 45L Geometric similarity of waste:							
Geometric similarity of waste: cone (V=1/3 π r ² .v) cylinder (V= π r ² .v) half cylinder (V= π r ² .v/2) cuboid (V=a.b.c) other							
SAMPLING METHODOLOG		(V=1114/2) [_] CODOIO	(V-a.b.c) outer				
	opulation or uniform sampling: co	nre sample					
Accessibility: Accessible		no sempro					
(access problems affecting the area							
Location and sampling po	and quantity of waste sampled)						
<u>r Location and Sampling Do</u>							

	Sampling approach: Probabilistic iudgemental
ŀ	Describe the sampling procedure or technique:
	Core sample will be split in separate samples (about every 4m will be one sample).
l	This sample is depth from 8 to 12m.
Ì	Sampling equipment used: drilling rig, soil probe, hand shovel
Ì	Use of rented equipment: YES NO NO
	Verification method: /
ľ	Number of increments: 1
ľ	The amount of each increment: 45L
	Observations during sampling (gas evolution, reactions, heat development, etc.):
Ì	Details of on-site determinations:
	Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
ŀ	goggles, etc.).
ŀ	SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
l	Describe the location (field, workshop or lab, indoor or outdoor)
ŀ	Outdoor, top of landfill Procedure: sub-sample taken in the field for:
l	BTEX VOC Total Hydrocarbons PAH .
ŀ	PACKAGING, PRESERVATION, STORAGE, TRANSPORT
ŀ	Packaging: ☐ Glass ☑ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
ŀ	Preservation: Preserved with refrigeration Inot preserved
ŀ	Storage/Storage: storage IKEMA d.o.o.
ŀ	Transport: ⊠ car trunk □ Cooling bag □ Other
l	
l	T _{zeč} .= 5,5 °C T _{konč} .= 6,8 °C Equipment ID: I-185D
	DEVIATION FROM THE SAMPLING PLAN: YES NO NO
	Description of the deviation:
l	
l	
l	
ŀ	WEATHER CONDITIONS
ŀ	Air temperature: 4°C
l	Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
l	Treaties Sullity coody carry show Sules (dr) and sold)
ŀ	DELIVERY TO THE ANALYTICAL LABORATORY
ŀ	Laboratory: IKEMA d.o.o.
l	Date of delivery: 12.12.2024
l	
l	
	Report by: Andrej Cencic
	· · · · · · · · · · · · · · · · · · ·
	Accuracy and the remove Marke North Clauser
-	Approved the report: Nataša Kante Flanjak
	INSTITUTE ZA INIMIA, SENDINIA, SERVICE DA NASALTIMO
	Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju

Date of report: 12.12.2024

Sample photographs









Pages 4/4



2324 Lovrenc na Dravskem polju

www.ikema.si



Rezultati označeni z # oz noakreditirane se nanašajo na neakredhirano dejavnost

TEST REPORT

Report No: 2024-3114

General information:

Name: Waste analysis

Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by: Andrej Cenčič No. Offers: P 153/2024

Sample information:

Subscription code: Zagreb Landfill 12 - 16m Description of the sample: Zagreb Landfill, 12 - 16m

Sampling time: 12.12.2024

Sample status: The sample meets the admission criteria

Date of sample collection: 12.12.2024 Date of report: 28.02.2025

Sample ID: Lab.No.: 2024 - 3114

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result		measurement i uncertainty	method	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		919			CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	09.01.2025 09.01.2025
2. Parameter-ODPADEK	Unit	limit values	Result		measurement r uncertainty	method	beginning / end analyses
Total organic carbon-TOC	% d.m.		7,4		Ç	SIST EN 15936:2022, Method B	30.01.2025 01.02.2025
Net Calorific value	kJ/kg d.m.		<6000	#		SIST-TS-CEN/TS 16023:2014	31.12.2024 31.12,2024
Gross Calorific value	kJ/kg d.m.		<6000	#	Ş	SIST-TS-CEN/TS 16023:2014	31.12.2024 31.12.2024
pH (2.)	1		9,3	•		EN ISO 10390:2022, SIST EN 16179:2013	28.01.2025 28.01.2025
Dry matter	%		65,52		E	EN 15934:2012, Method A	17.12.2024 17.12.2024
Loss on ignition	% d.m.		18,93		5	SIST EN 15935:2021	10.01.2025 10.01.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		<5		(DNORM S 2027-4:2012	17.12.2024 27.12.2024
Volatile substances	% d.m.		21,1			SO 22167:2021 mod.	25.02.2025 25.02.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT Identification number: S199144620, business account number: S156 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values Result	measurement method uncertainty	beginning / end analyses
Waste sampling	I	1	SIST EN 14899:2006	12.12.2024 12.12.2024

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample in water, T=21.2°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts removed before analysis (ut%=30.0%).

Remark:

The fest results refer to the sampled population as defined in Sampling Report No. 2024-3114, which includes all sampling data and is an annex to the Test Report. Any additional information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by:

Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Approved by:Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.







Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.lkema.si

Rezultatroznačeni z # oz neakreditirano se nanašajo na neakreditirano dejavnost

WASTE SAMPLING RECORD

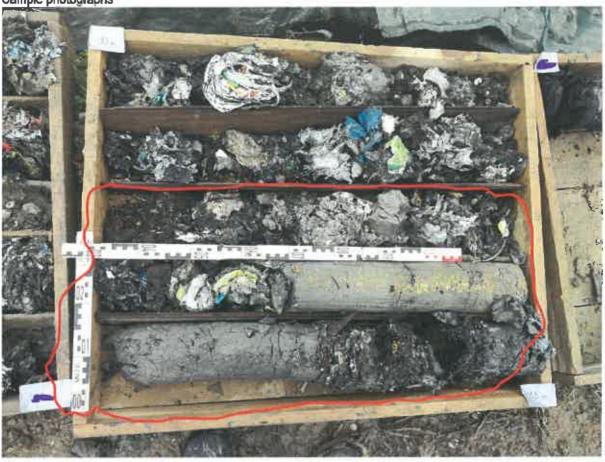
In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 202	4-3114								
BASIC DATA									
Client Sample code: /									
Sample ID: Lab no.: 2024-3									
	12.12.2024 from 9:30 to 11:30								
Persons present: dr.sc. Želji	დ Lebo, dipl.ing.građ.								
GENERAL INFORMATION									
Client: OPĆINSKI SUD U No	OVOM ZAGREBU, Turinina i	ilica	a 3, 10000 Zagreb						
	<u>lište otpada Jakuševec, Sajmi</u>	šna	cesta 12, 10010, Zagreb,	<u>In</u>	<i>r</i> atska				
Sampling location: Odlagalis									
Sampling sub-location: spot	Sampling sub-location: spot sampling at the core drilling site								
Carried out by: IKEMA d. o.	o., Lovrenc na Dravskem polju	14,	2324 Lovrenc na Dr. polju						
Sampler: ing. Andrej Cencic	, mag. Matjaz Cencic								
SAMPLING OBJECT - WAS	STE DATA				12/12				
Sample population: core sar	nple								
Waste number: /									
Type of waste: deposited wa	iste on landfill								
Description of the sample:									
Colour.									
Smell: ☐strong ⊠weak ☐]without ⊠odour								
Control of Children of the									
Grain size: Uniform size	XI different sizes								
Estimated moisture content:	20 200/								
Estimated moisture content.	20-30 %								
liquid			in pieces	Γ	suspension				
densely liquid/pasty	multiple aggregate layers		grainy	H	emulsion				
sludgy	⊠ moist		in powder form	H	dispersion				
⊠ solid	dry		hard	İ					
homogeneous	dusting		hygroscopic						
Additional description:									
Different layers easily identified	:- thele-								
Different layers easily identified	in the core samples.								
Grain size range: 0,01-80mm			·						
Density or bulk density: /				_	***				
Amount of waste to be sampled	about 45L								
Geometric similarity of waste:	-		•						
Cone (V=1/3πr².v) 🗵 cyli	nder (V= πr² .v) 🔲 half cylinder	(V=	: πr2 .v/2)	c)	other				
SAMPLING METHODOLOGY				_					
Describe/define the sub-poper	ulation or uniform sampling: co	re s	sample						
Accessibility: Accessible [
(access problems affecting the area and									
Location and sampling points									
Sampling coordinates: N: 50	69428,1900 E:463103,5360								

Sampling approach: Probabilistic judgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 4m will be one sample).
This sample is depth from 12 to 16m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO NO
Verification method: /
Number of increments: 1
The amount of each increment: 45L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
□BTEX □VOC □ Total Hydrocarbons □ PAH □ □
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☐ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration not preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
T _{zač} .= 5,5 °C T _{konč} .= 6,8 °C Equipment ID: I-185D
DEVIATION FROM THE SAMPLING PLAN: YES NO NO
Description of the deviation:
WEATHER CONDITIONS
Air temperature: 4°C
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024
Weather: Sunny Scloudy Irainy Isnow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024 Report by: Andrej Cencic
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024
Weather: Sunny Scloudy Irainy Isnow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024 Report by: Andrej Cencic
Weather: Sunny Scloudy Irainy Isnow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024 Report by: Andrej Cencic
Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: 1KEMA d.o.o. Date of delivery: 12.12.2024 Report by: Andrej Cencic Approved the report: Nataša Kante Flanjak
Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 12.12.2024 Report by: Andrej Cencic Approved the report: Nataša Kante Flanjak

Pages 2/4

Sample photographs









Pages 4/4



Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.lkema.si



TEST REPORT

Report No: 2025-0114

General information:

Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by:

mag. Matjaž Cenčič

No. Offers:

P 154/2024

Sample information:

Subscription code: Description of the sample: Zagreb Landfil, 16m - 20m Zagreb Landfll, 16m - 20m

Sampling time:

24.1.2025

Sample status:

The sample meets the admission criteria

Date of sample collection:

24.01.2025

Date of report:

19.03.2025

Sample ID:

Lab.No.: 2025 - 0114

Analysis:

MEASUREMENTS:

1. Parameter- Leachate	Unit	limit values	Result		rneasurement r uncertainty	method	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		2080			CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025
2. Parameter -Waste	Unit	limit values	Result		measurement r uncertainty	nethod	beginning / end analyses
Total organic carbon-TOC	% d.m		8,9		5	SIST EN 15936:2022, Method B	17.02.2025 19.02.2025
Net Calorific value	kJ/kg d.m.		<6000	#	3	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	1		8,8			EN ISO 10390:2022, SIST EN 16179:2013	03.03.2025 03.03.2025
Gross Calorific value	kJ/kg d.m.		<6000	#	- 5	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		60,56		E	EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss on ignition	% d.m.		20,38		S	SIST EN 15935:2021	10.02.2025 10.02.2025
AT4 - Biological stability (3.)	mgO2/g d.m.	·	<5		C	DNORM S 2027-4:2012	25.02.2025 04.03.2025
Volatile substances	% d.m.		22,1		4	SO 22167:2021 mod.	25.02.2025 25.02.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.
T:+386(0)2 790 0060, F:+386(0)2 7900061, E:Info@ikema.si, VAT identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values result	measurement method uncertainty	beginning / end analyses
Waste sampling	1	1	SIST EN 14899:2006	24.01.2025 24.01.2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample in water, T=20.8°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts removed before analysis (ut%=27.51%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0114, which includes all sampling data and is an annex to the Test Report.

Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by:

Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Approved by:Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

> Lovrenc na Dravskem polju 4 ma Lovrenc na Dravskem polju

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.
T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT identification number: Si99144620, business account number: Si56 0215 0001 7604 620 with NLB d.d.



Lovreno na Dravskem polju 4 2324 Lovreno na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

SAMPLING PLAN - WASTE

In accordance with SIST EN 14899:2006, Annex A, Table A.1

	-	
GENERAL INFORMATION 2025-0114, 2025-0115		
The sampling plan was made by: mag. Matjaž Cenčič	For the purpose of: Analysis of waste Jakuševec	in odlagalište
Waste holder/Company:	The producer of the waste:	
Odlagalište otpada Jakuševec	Odłagalište otpada Jakuševec	
Sajmišna cesta 12,	Sajmišna cesta 12,	
10010, Zagreb,	10010, Zagreb,	
Hrvatska	Hrvatska	
Other involved parties: g. Gabrovšek		
The sampling will be carried out by IKEMA d. o. o.	Name of the sampler: mag. Matjaž Ce Lampreht dipl. ekolog naravovarstven	ik (UN).
THE PURPOSE OF THE SAMPLING/SAMPLING OBJ landfill in Jakuševec.	ECTIVE: sampling of predrilled core sar	mples from the body of
SAMPLING APPROACH: probabilisticen / probabilistic		
MATERIAL:	<u> </u>	
Core samples from landfill.	Location:	
	Odlagalište otpada Jakuševec	
	Sajmišna cesta 12,	
	10010, Zagreb, Hrvatska	
How the waste is produced:	The Volkski	
By disposing of waste material.		
Waste generation process/activity: compacting	· · · · · · · · · · · · · · · · · · ·	
Specifies the properties and contents to be determined:	parameters requested by client (OPC)	NSKI SUD U NOVOM
ZAGREBU)	, parameters 124 22 23 24 25 25 25 25 25 25 25 25 25 25 25 25 25	
SAMPLING METHOD:		
Specify the detailed sampling location: sampling location	determent by client	
Define sub-population: core sample from a pile		
Define the sampling location and points: location of core	samples determent by client	
Specify the date and time of sampling: 24.1.2025		
Identify the people who will be present (note names and	addresses): Matic Borštnar Lampreht d	lipl. ekolog
naravovarstvenik (UN) mag. Matjaž Cenčič, dr.sc. Željko		<u> </u>
Specify sampling techniques (CEN/TR 15210-2): collect	ion of core samples	
Specify the equipment: pedološka sonda, lopatica / soil		
Use of rented equipment: YES		NO.
Verification method : /		<u></u>
Specifies the number of increments/samples to be taken	(CEN/TR 15310-1): each	
Determine the increment/sample size (CEN/TR 1510-1):	about. 40L	
Give the requirements for field determinations (mean	surements): determining GPS coordina	ites on sampling site,
photo	<u> </u>	
Determine how the samples are to be labelled: v	skladu z postopki IKEMA d. o. o. / in	accordance with the
procedures IKEMA d. o. o.		
Set out instructions for safe working: general guidant	ce, protection of hands and eyes with gl	asses, suitable
footwear. High visibility jacket	<u> </u>	<u> </u>
SUBSAMPLING; ne / no		
Detailed procedures (CEN/TR 15310-3):	4 101	
Core sample will be split in separate samples (about eve	ery 4m will be one sample).	

PACKAGING, PRESERVATION, STORAGE AND REQUIREMENTS DURING TRANSPORT (CEN/TR 15310-4):

Packaging: PE bag,

Preservation: ní / no preservation

Storage: hladilnica laboratorija podjetja IKEMA d. o. o. / cold room of company IKEMA d. o. o.

Transport: prtljažnik osebnega avtomobilla / the trunk of passenger car

ANALYTICAL LABORATORY accepting the sample: IKEMA d. o. o.

Date of sample acceptance: 24.1.2025



Sampling location (source: Google earth)







SLOVENSKA AKREDITACIJA SIST EN ISO/IEC 17025 LP-048

+386 (0)2 790 00 60 2324 Lovrenc na Dravskem polju www.ikema.si

Rezultati označeni z # oz neakreditirane se nanašajo na neakreditirano dejavnost

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2025-0114				_				
BASIC DATA		<u> </u>						
Client Sample code: /					<u> </u>			
Sample ID: Lab no.: 2025-0114				_				
Date and time of sampling: 24.1.2025 from 10:00 to 10	0:30							
Persons present: dr.sc. Željko Lebo, dipl.ing.građ.								
GENERAL INFORMATION								
Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinir	na ulica	3, 10000 Zagreb						
The waste producer: Odlagalište otpada Jakuševec, Sajmišna cesta 12, 10010, Zagreb, Hrvatska								
Sampling location: Odlagalište otpada Jakuševec								
Sampling sub-location: spot sampling at the core drilling site								
Carried out by: IKEMA d. o. o., Lovrenc na Dravskem	polju 4,	2324 Lovrenc na Dr. polju						
Sampler: Matic Borštnar Lampreht dipl. ekolog naravo	varstve	nik (UN), mag. Matjaz Cen	cic					
SAMPLING OBJECT - WASTE DATA		_						
Sample population: core sample								
Waste number: /								
Type of waste: deposited waste on landfill					<u>.</u>			
Description of the sample:								
Colour:								
Smell: ☐strong ☑weak ☐without ☑odour								
Grain_size: Uniform size different sizes								
Estimated moisture content: 25-40%								
		1 to a to) - I	_				
☐ liquid ☐ inhomogeneous		in pieces			suspension			
☐ liquid ☐ inhomogeneous ☐ densely liquid/pasty ☐ multiple aggregate layer	ers [grainy			emulsion			
☐ liquid ☐ inhomogeneous ☐ densely liquid/pasty ☐ multiple aggregate layer ☐ sludgy ☐ moist	ars [grainy in powder form						
□ liquid	ers [grainy in powder form hard			emulsion			
☐ liquid ☐ inhomogeneous ☐ densely liquid/pasty ☐ multiple aggregate layer ☐ sludgy ☐ moist	ers [grainy in powder form			emulsion			
□ liquid	ers [grainy in powder form hard			emulsion			
□ liquid	ers [grainy in powder form hard			emulsion			
liquid	ors [grainy in powder form hard			emulsion			
□ liquid	ors [grainy in powder form hard			emulsion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ solid □ dry □ homogeneous □ dusting Additional description: □ Different layers easily identified in the core samples.		grainy in powder form hard			emulsion			
liquid		grainy in powder form hard			emulsion			
liquid		grainy in powder form hard			emulsion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ solid □ dry □ homogeneous □ dusting □ Additional description: □ Different layers easily identified in the core samples. □ Grain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: about 40L		grainy in powder form hard			emulsion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ sludgy □ dry □ homogeneous □ dusting □ homogeneous □ dusting □ different layers easily identified in the core samples. □ different layers easily identifi		grainy in powder form hard hygroscopic	c)		emulsion dispersion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ dry □ homogeneous □ dusting □ dusting □ dusting □ lifferent layers easily identified in the core samples. □ Crain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: about 40L □ Geometric similarity of waste: □ cone (V=1/3πr².v) □ cyllnder (V= πr².v) □ half cylinder (V= π		grainy in powder form hard	.c)		emulsion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ sludgy □ dry □ homogeneous □ dusting Additional description: □ Different layers easily identified in the core samples. Grain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: about 40L □ Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylinder (V= πr².v) □ half cylisampling methodology	nder (V	grainy in powder form hard hygroscopic = \pi r^2 \cdot v/2) \text{cuboid (V=a.b)}	(c)		emulsion dispersion			
liquid	nder (V	grainy in powder form hard hygroscopic = \pi r^2 \cdot v/2) \text{cuboid (V=a.b)}	.c)		emulsion dispersion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ sludgy □ dry □ homogeneous □ dusting Additional description: □ Different layers easily identified in the core samples. Grain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: about 40L □ Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylinder (V= πr².v) □ half cylisampling methodology	nder (V	grainy in powder form hard hygroscopic = \pi r^2 \cdot v/2) \text{cuboid (V=a.b)}	(c)		emulsion dispersion			
□ liquid □ inhomogeneous □ densely liquid/pasty □ multiple aggregate layer □ sludgy □ moist □ dry □ homogeneous □ dusting □ dusting □ dusting □ lifterent layers easily identified in the core samples. □ Grain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: about 40L □ cone (V=1/3πr².v) □ cylinder (V= mr².v) □ half cyling SAMPLING METHODOLOGY □ Describe/define the sub-population or uniform sampling Accessibility: □ Accessible □ inaccessible □ inac	nder (V	grainy in powder form hard hygroscopic = \pi r^2 \cdot v/2) \text{cuboid (V=a.b)}	.c)		emulsion dispersion			

Sampling approach: Probabilistic judgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 4m will be one sample).
This sample is depth from 16m to 20m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO
Verification method: /
Number of increments: 1
The amount of each increment: 40L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor) Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
□BTEX □VOC □ Total Hydrocarbons □ PAH □ □
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☑ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration not preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
T _{zač} .= 3,4 °C T _{konč} .= 3,6 °C Equipment ID: I-185B
DEVIATION FROM THE SAMPLING PLAN: YES NO 🖂
Description of the deviation:
WEATHER CONDITIONS
Air temperature: 2°C
Weather: ☐ Sunny ☐ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
DELIVERY TO THE ANALYTICAL LABORATORY
Laboratory: IKEMA d.o.o.
Date of delivery: 24.1.2025
December 11-15-15 Constitution of the Constitu
Report by: Matjaž Cenčič
Approved the report: Nataša Kante Flaniak
an union to Extended
Approved the report: Nataša Kante Flanjak Lovrenc da Craveke Lovrenc da Craveke

Date of report: 13.3.2025

Sample photographs









TEST REPORT

Report No: 2025-0115

General information:

Name: Waste analysis

Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by: maq. Matjaž Cenčič

No. Offers: P 153/2024

Sample information:

Subscription code: Zagreb Landfil, 20m - 22m
Description of the sample: Zagreb Landfil, 20m - 22m

Sampling time: 24.1.2025

Sample status: The sample meets the admission criteria

Date of sample collection: 24.01.2025
Date of report: 19.03.2025

Sample ID: Lab.No.: 2025 - 0115

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result		measurement method uncertainty	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.	•	5451		CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025
2. Parameter-WASTE	Unit	limit values	Result		measurement method uncertainty	beginning / end analyses
Total organic carbon-TOC	% d.m.		14		SIST EN 15936:2022, Method	
Net Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	I		7,9		EN ISO 10390:2022, SIST EN 16179:2013	03.03.2025 03.03.2025
Gross Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		67,65		EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss of incandescence	% d.m.		30,43		SIST EN 15935:2021	10.02.2025 10.02.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		8,45		ONORM S 2027-4:2012	25.02.2025 04.03.2025
Volatile substances	% d.m.		27,2		ISO 22167:2021 mod.	25.02.2025 25.02.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0060, F:+386(0)2 7900061, Exinfo@ikema.si, VAT identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values result	measurement method uncertainty	beginning / end analyses
Waste sampling	1	1	SIST EN 14899:2006	24.01.2025 21.01.2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um mambrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample in water, T=20.8°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts that were removed before the analysis (ut%=41.80%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0115, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flaniak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.







Rezultati označeni z # oz **neakreditireno** se nanašajo na neakreditirano dejavnost

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 202					
	5-0115				<u> </u>
BASIC DATA					<u> </u>
Client Sample code: /					<u> </u>
Sample ID: Lab no.: 2025-0					
Date and time of sampling:	24.1.2025 from 10:30 to 11:00				
Persons present: dr.sc. Želji					
GENERAL INFORMATION					
Client: OPĆINSKI SUD U N	OVOM ZAGREBU, Turinina uli	ca 3	3, 10000 Zagreb		<u> </u>
	ilište otpada Jakuševec, Sajmi			lrva	ntska
Sampling location: Odlagalis					
	sampling at the core drilling sit	e			
	o., Lovrenc na Dravskem polju		2324 Lovrenc na Dr. poliu		
	npreht dipl. ekolog naravovarsi			ic	
SAMPLING OBJECT - WAS					
Sample population: core sar			·		
Waste number: /			· · · · · · · · · · · · · · · · · · ·		
Type of waste: deposited wa	este on landfill		·		
Description of the sample					
Colour:	ı				
Colour.					
Smell: ☐strong ⊠weak ☐	Twithout Modour				
Official Canonia Masay C	Twitten 520000				
Grain size: Uniform size	☑ different sizes				
Estimated moisture content;	30%-40%				
☐ liquid	inhomogeneous		in pieces		suspension
			grainy		emulsion
☐ liquid	inhomogeneous		grainy in powder form		
☐ liquid ☐ densely liquid/pasty	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy	inhomogeneous multiple aggregate layers moist		grainy in powder form		emulsion
liquid densely liquid/pasty sludgy solid	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description:	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
☐ liquid☐ densely liquid/pasty☐ sludgy☐ solid☐ homogeneous☐ homogeneous☐ Different layers easily identified☐ Grain size range: 0,01-80mm	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
☐ liquid☐☐ densely liquid/pasty☐☐ sludgy☐☐ solid☐☐ homogeneous☐☐ homogeneous☐☐☐ homogeneous☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
☐ liquid☐☐ densely liquid/pasty☐☐ sludgy☐☐ homogeneous☐☐ homogeneous☐☐ homogeneous☐☐☐ homogeneous☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
☐ liquid☐☐ densely liquid/pasty☐☐ sludgy☐☐ homogeneous☐☐	inhomogeneous multiple aggregate layers moist dry dusting In the core samples.		grainy in powder form hard hygroscopic	c)	emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sample Geometric similarity of waste: cone (V=1/3πr².ν) ∠ cyl	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard hygroscopic	C)	emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous □ cone layers easily identified	inhomogeneous multiple aggregate layers moist dry dusting In the core samples. d: about 40L inder (V= πr².v) haif cylinder	{\V=	grainy in powder form hard hygrescopic πr².v/2) □ cuboid (V=a.b	c)	emulsion dispersion
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous ☐ homogeneous ☐ homogeneous ☐ homogeneous ☐ cain size range: 0,01-80mm ☐ homogeneous ☐ description: ☐ Grain size range: 0,01-80mm ☐ homogeneous ☐ cain size range: 0,01-80mm ☐ homogeneous ☐ homog	inhomogeneous multiple aggregate layers moist dry dusting In the core samples. d: about 40L inder (V= πr².v) haif cylinder	{\V=	grainy in powder form hard hygrescopic πr².v/2) □ cuboid (V=a.b	c)	emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous □ cone layers easily identified	inhomogeneous multiple aggregate layers moist dry dusting In the core samples. d: about 40L inder (V= πr².v) ☐ half cylinder pulation or uniform sampling: co	{\V=	grainy in powder form hard hygrescopic πr².v/2) □ cuboid (V=a.b	c)	emulsion dispersion
liquid densely liquid/pasty sludgy solid hornogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sample Geometric similarity of waste: cone (V=1/3πr² ·v) ✓ cyl SAMPLING METHODOLOGY Describe/define the sub-pop Accessibility: ☒Accessible (access problems affecting the area ar Location and sampling point	inhomogeneous multiple aggregate layers moist dry dusting In the core samples. d: about 40L inder (V= πr².v) ☐ haif cylinder culation or uniform sampling: co inaccessible d quantity of waste sampled)	{\V=	grainy in powder form hard hygrescopic πr².v/2) □ cuboid (V=a.b	c)	emulsion dispersion

Sampling approach: Probabilistic iudgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 4m will be one sample).
This sample is depth from 20m to 22m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO
Verification method: /
Number of increments: 1
The amount of each increment: 25L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
BTEX VOC Total Hydrocarbons PAH D
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☐ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration Inot preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
T _{zeč} .= 3,4 °C T _{konč} .= 3,6 °C Equipment ID: I-185B
T _{zec} .= 3,4 °C T _{konc} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO
T _{zec} := 3,4 °C T _{konc} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation:
T _{zec} .= 3,4 °C T _{konc} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less
T _{zec} := 3,4 °C T _{konc} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation:
T _{ze6} .= 3,4 °C T _{kon6} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25l of sample. WEATHER CONDITIONS
T _{ze6} := 3,4 °C T _{kon6} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C
T _{ze6} .= 3,4 °C T _{kon6} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25l of sample. WEATHER CONDITIONS
T _{ze6} := 3,4 °C T _{kon6} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C
T ₂₈₅ .= 3,4 °C T _{loon5} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25i of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
T _{ze6} := 3,4 °C T _{kon6} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
T ₂₈₅ .= 3,4 °C T _{loon5} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25i of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
T ₂₈₅ .= 3,4 °C T _{loon5} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25i of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
T ₂₈₅ .= 3,4 °C T _{loon5} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25i of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
T ₂₈₆ := 3,4 °C T _{konf} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
T ₂₈₅ .= 3,4 °C T _{loon5} .= 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50i, so we took 25i of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
T ₂₈₆ := 3,4 °C T _{konf} := 3,6 °C Equipment ID: I-185B DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
T ₂₈₆ = 3,4 °C T _{kon6} = 3,6 °C Equipment ID: I-185B Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: □ Sunny ☑ cloudy □ rainy □ snow □ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
T _{zeč} := 3,4 °C T _{konč} := 3,6 °C Equipment ID: I-185B Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: □ Sunny ☑ cloudy □ rainy □ snow □ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025 Report by: Matjaž Cenčič
T ₂₈₆ = 3,4 °C T _{kon6} = 3,6 °C Equipment ID: I-185B Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample. WEATHER CONDITIONS Air temperature: 2°C Weather: □ Sunny ☑ cloudy □ rainy □ snow □ other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025

Date of report: 13.3.2025

Sample photographs







Lovrenc na Dravskem polju 4 +386 (0 2324 Lovrenc na Dravskem polju W

+386 (0)2 790 00 60 www.ikema.si



TEST REPORT

Report No: 2025-0116

General information:

Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU "Turinina ulica 3, 10000 Zagreb

Sampled by:

mag. Matjaž Cenčič

No. Offers:

P 153/2024

Sample information:

Subscription code:

Zagreb Landfill, 0m - 5m

Description of the sample:

Zagreb Landfill 0m - 5m

Sampling time:

24.1.2025

Sample status:

The sample meets the admission criteria

Date of sample collection:

24.01.2025

Date of report:

20.03.2025

Sample ID Ⅱ

Lab.No.: 2025 - 0116

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result		measurement uncertainty	method	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		1388			CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025
2. Parameter-Waste	Unit	limit values	result		measurement uncertainty	method	beginning / end analyses
Total organic carbon-TOC	% d.m.		24			SIST EN 15936:2022, Method B	17.03.2025 19.03.2025
Net Calorific value	kJ/kg d.m.		<6000	#		SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	1		7,7			EN ISO 10390:2022, SIST EN 16179:2013	03.03.2025 03.03.2025
Gross Calorific value	kJ/kg d.m.		7600	#		SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		66,61			EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss on ignition	% d.m.		32,69			SIST EN 15935:2021	21.02.2025 21.02.2025
Volatile substances	% d.m.		30,6	#		EN ISO 22167:2021 mod.	25.02.2025 25.03.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		<5		····	ONORM S 2027-4:2012	05.03.2025 13.03.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0080, F:+386(0)2 7900061, E:Info@ikema.sl, VAT identification number: Si99144620, business account number: Si56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values	Result	measurement method uncertainty	beginning / end analyses
Waste sampling	1		1	SIST EN 14899:2006	24.01.2025 24.01.2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO(4
- (2.) Leaching of air-dry sample In water, T=20,9°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of finerts removed before analysis (ut%=40,3%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0116, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried cut is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flanjak Dipl,Eng.Chem.Technol.

interpress

Lovienc no Skert pr

2324 Lovienc na Dravike ign



Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

SAMPLING PLAN - WASTE

In accordance with SIST EN 14899:2006, Annex A, Table A.1

GENERAL INFORMATION 2025-0116-2025-0120		
The sampling plan was made by: mag. Matjaž Cenčič	For the purpose of: Analysis of waste Jakuševec	in odlagalište
Waste holder/Company:	The producer of the waste:	
Odlagalište otpada Jakuševec	Odlagalište otpada Jakuševec	
Sajmišna cesta 12,	Sajmišna cesta 12,	
10010, Zagreb,	10010, Zagreb,	
Hrvatska	Hrvatska	
Other involved parties: g. Gabrovšek	1	919 E4 (4 B) 91
The sampling will be carried out by IKEMA d. c. c.	Name of the sampler: mag. Matjaž Ce Lampreht dipl. ekolog naravovarstven	ik (ÚN).
THE PURPOSE OF THE SAMPLING/SAMPLING OBJI landfill in Jakuševec.	ECTIVE: sampling of predrilled core sar	nples from the body of
SAMPLING APPROACH: probabilisticen / probabilistic		
MATERIAL:		
Core samples from landfill.	Location: Odlagalište otpada Jakuševec Sajmišna cesta 12, 10010, Zagreb, Hrvatska	
How the waste is produced:		
By disposing of waste material.		
Waste generation process/activity: compacting		
Specifies the properties and contents to be determined: ZAGREBU)	: parameters requested by client (OPCI	NSKI SUD U NOVOM
SAMPLING METHOD:		
Specify the detailed sampling location: sampling location	n determent by client	
Define sub-population: core sample from a pile		
Define the sampling location and points: location of core	samples determent by client	
Specify the date and time of sampling: 24.1.2025		
Identify the people who will be present (note names and naravovarstvenik (UN) mag. Matjaž Cenčič, dr.sc. Željko	Lebo, dipl.ing.građ.,	lipl. ekolog
Specify sampling techniques (CEN/TR 15210-2): collect	ion of core samples	
Specify the equipment: pedološka sonda, lopatica / soil	probe, hand shovel	
Use of rented equipment: YES Verification method : /		NO.
Specifies the number of increments/samples to be taker	(CEN/TR 15310-1); each	
Determine the increment/sample size (CEN/TR 1510-1):	·	
Give the requirements for field determinations (mea-		tes on sampling site,
photo		
Determine how the samples are to be labelled: v procedures IKEMA d. o. o.	skladu z postopki IKEMA d. o. o. / in	accordance with the
Set out instructions for safe working: general guidane	ce, protection of hands and eyes with al	asses, suitable
footwear. High visibility jacket	,	,
SUBSAMPLING: ne / no		
Detailed procedures (CEN/TR 15310-3):	 -	 -
Core sample will be split in separate samples (about eve	ery 5m will be one sample).	

PACKAGING, PRESERVATION, STORAGE AND REQUIREMENTS DURING TRANSPORT (CEN/TR 15310-4):

Packaging: PE bag,

Preservation: ni / no preservation

Storage: hladilnica laboratorija podjetja IKEMA d. o. o. / cold room of company IKEMA d. o. o.

Transport: prtljažnik osebnega avtomobilla / the trunk of passenger car

ANALYTICAL LABORATORY accepting the sample: IKEMA d. o. o.

Date of sample acceptance: 24.1.2025









Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

Rezultati označeni z # oz seakreditirane se nanašajo na neakreditirano dejavnost

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

COMMENTAL PROPERTY AND	E 0116		 -		
SAMPLING RECORD 2021 BASIC DATA	0-0110			_	
Client Sample code: /				_	
Sample ID: Lab no.: 2025-0	116			_	
	24.1.2025 from 11:00 to 11:20				
Persons present: dr.sc. Želji					
GENERAL INFORMATION	to Lebo, dipi.ing.grad.		.	_	
	OVOM ZAGREBU , Turinina u	lica	3 10000 Zagreb	_	
	ilište otpada Jakuševec, Sajmi			In	rateka
Sampling location: Odiagalis		oi ia	Cesta 12, 10010, Zagleu,	10.0	aloka
	sampling at the core drilling sit	10		_	
	o., Lovrenc na Dravskem polju		2224 Lovrono na Dr. noliu	_	
	npreht dipl. ekolog naravovars			in	
SAMPLING OBJECT - WAS		MEH	iik (ON), inag. Magaz Cerio	HL.	
Sample population: core sar			<u> </u>	_	
Waste number: /				_	<u></u>
Type of waste: deposited wa	sta on landfill		<u></u>	_	
Description of the sample:				_	
Colour:					
<u> </u>					
Smell: □strong ⊠weak □	without o odour				
Grain size: Uniform size	different eizes				
Ciamaize. Dinioni aize	dilierent sizes				
Estimated moisture content:	30%-50%				
Estimated moisture content:	<u>30%</u> -50%				
Estimated moisture content:			in pieces	Ī	suspension
	30%-50% ☑ inhomogeneous ☑ multiple aggregate layers		in pieces grainy		suspension emulsion
liquid densely liquid/pasty sludgy	☑ inhomogeneous				
☐ liquid☐ densely liquid/pasty☐ sludgy☐ solid☐	inhomogeneous multiple aggregate layers moist dry		grainy		emulsion
liquid densely liquid/pasty sludgy	inhomogeneous multiple aggregate layers moist		grainy in powder form		emulsion
☐ liquid☐ densely liquid/pasty☐ sludgy☐ solid☐	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
☐ liquid☐ densely liquid/pasty☐ sludgy☐ solid☐	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description:	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
liquid densely liquid/pasty sludgy solid homogeneous Additional description:	inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion
iliquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.		grainy in powder form hard		emulsion
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste:	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.		grainy in powder form hard		emulsion
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: ☐ cone (V=1/3πr².v) ☐ cylii	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.	(V=	grainy in powder form hard hygroscopic		emulsion
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: ☐ cone (V=1/3πr².v) ☐ cylin SAMPLING METHODOLOGY	inhomogeneous Implicate aggregate layers Implicate agg		grainy in powder form hard hygroscopic πr².v/2) □ cuboid (V=a.b.e		emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylin SAMPLING METHODOLOGY Describe/define the sub-poption	inhomogeneous imultiple aggregate layers moist dry dusting in the core samples. about 40L der (V= πr².v) half cylinder		grainy in powder form hard hygroscopic πr².v/2) □ cuboid (V=a.b.e		emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylin SAMPLING METHODOLOGY Describe/define the sub-populacessibility: □ Accessibile	inhomogeneous multiple aggregate layers moist dry dusting dusting in the core samples. about 40L der (V= m².v)		grainy in powder form hard hygroscopic πr².v/2) □ cuboid (V=a.b.e		emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylin SAMPLING METHODOLOGY Describe/define the sub-populacess problems affecting the area and	inhomogeneous multiple aggregate layers moist dry dusting in the core samples. about 40L der (V= πr².ν) half cylinder lation or uniform sampling: co inaccessible quantity of waste sampled)		grainy in powder form hard hygroscopic πr².v/2) □ cuboid (V=a.b.e		emulsion dispersion
□ liquid □ densely liquid/pasty □ sludgy □ solid □ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste: □ cone (V=1/3πr².v) □ cylin SAMPLING METHODOLOGY Describe/define the sub-populacessibility: □ Accessibile			grainy in powder form hard hygroscopic πr².v/2) □ cuboid (V=a.b.e		emulsion dispersion

Sampling approach:
Probabilistic judgemental Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 5m will be one sample).
This sample is depth from 0m to 5m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO
Verification method: /
Number of increments: 1
The amount of each increment: 40L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
BTEX VOC Total Hydrocarbons PAH
PACKAGING, PRESERVATION, STORAGE, TRANSPORT Packaging Glass XI501 PE bag PE bottle metal packaging other
Packaging: ☐ Glass ☐ DE bottle ☐ metal packaging ☐ other Preservation: ☐ Preserved with ☐ refrigeration ☐ Most preserved
Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
Mansport. Car Itulia Cooling bag Outer
T _{zač} .= 3,4 °C T _{konč} .= 3,6 °C Equipment ID: I-185B
DEVIATION FROM THE SAMPLING PLAN: YES NO NO
Description of the deviation:
1
WEATHER CONDITIONS
Air temperature: 2,5°C
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
The Computer Burn Annual Lands
DELIVERY TO THE ANALYTICAL LABORATORY
Laboratory: IKEMA d.o.o.
Date of delivery: 24.1.2025
Report by: Matiaž Cenčič
Report by: Matjaž Cenčič
Report by: Matjaž Cenčič Approved the report: Nataša Kante Flanjak
Approved the report: Nataša Kante Flanjak
Approved the report: Nataša Kante Flanjak
Approved the report: Nataša Kante Flanjak
Approved the report: Nataša Kante Flanjak

Date of report 13.3.2025

Sample photograph





Lovrenc na Dravskem poliu 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si



TEST REPORT

Report No: 2025-0117

General information:

Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU "Turinina ulica 3, 10000 Zagreb

Sampled by:

maq.Matjaž Cenčič

No. Offers:

P 153/2024

Sample Information:

Subscription code: Description of the sample: Zagreb Landfill, 5m - 10m Zagreb Landfill, 5m - 10m

Sampling time:

24.1.2025

Sample status:

The sample meets the admission criteria

Date of sample collection:

24.01.2025

Date of report:

20.03.2025

Sample ID:

Lab.No.: 2025 - 0117

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result	measurement method uncertainty	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		1782	CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025

2. Parameter-WASTE	Unit	limit values	result		measurement method uncertainty	beginning / end analyses
Volatile substances	% d.m.		21	#	EN ISO 22167:2021 mod	25.02.2025 25.02.2025
Total organic carbon-TOC	% d.m.		9,3		SIST EN 15936:2022, Method B	17.03.2025 19.03.2025
Net Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	1		10,4		EN ISO 10390:2022, SIST EN 16179:2013	03.03.2025 03.03.2025
Gross Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		75,02		EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss on ignition	% d.m.		17,51		SIST EN 15935:2021	21.02.2025 21.02.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		<5		ONORM S 2027-4:2012	05.03.2025 13.03.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.
T:+386(0)2 790 0060, F:+386(0)2 79000061, E:info@ikema.si, VAT identification number: S!99144620, business account number: S!56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values Resu	It measurement method uncertainty	beginning / end analyses
Waste sampling	T	1	SIST EN 14899:2006	24.01,2025 24.01,2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO4
- (2.) Leaching of air-dry sample in water, T=20.8°C
- (3.) The analysis is carried out on a previously frozen sample, thewed for 24 hours in a temperature chamber. The result is given taking into account the percentage of linerts that were removed before the analysis (ut%=38.61%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0117, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.







SLOVENSKA AKREDITACIJA SIST EN ISO/IEC 17025 LP-048

Rezultati označení z # oz neekreditirano se nanašajo ná neakreditirano dejavnost

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju

+386 (0)2 790 00 60 www.ikema.si

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2025	-0117				
BASIC DATA					
Client Sample code: /		-			
Sample ID: Lab no.: 2025-01	17				
	4.1.2025 from 11:20 to 11:40				
Persons present dr.sc. Željk					
GENERAL INFORMATION	o 2000; alþinigigida.				
	OVOM ZAGREBU , Turinina u	lica	3 10000 Zagreb		
	lište otpada Jakuševec, Sajmis			DV:	atska
Sampling location: Odlagališ		31 IU	12, 10010, 2ag105;(1	1 7 4	and the same of th
	sampling at the core drilling sit	e			
	o., Lovrenc na Dravskem polju		2324 Lovrenc na Dr. poliu		·
	preht dipl. ekolog naravovarst			ic	
SAMPLING OBJECT - WAS			in (OTT); mag. Magaz Oono		
Sample population: core san		_			
Waste number: /	1910				
Type of waste: deposited wa	ste on landfill				
Description of the sample:	DES OFF REFRESH				
Colour:					
<u> </u>					
Smell: ☐strong ⊠weak ☐	lwithout ⊠lodour				
Grain size: Uniform size	different sizes				
Estimated moisture content:	<u>30%</u> -50%				
		_	-	_	<u> </u>
☐ liquid	inhomogeneous	-	In pieces	┾	suspension
densely liquid/pasty	multiple aggregate layers moist	┾	grainy in powder form	┢	emulsion
☐ sludgy ⊠ solid	□ dry	늗	hard	누	dispersion
homogeneous	dusting	-	hygroscopic	卡	1
I nomogoriosos	duonig		ттудговоорю		
Additional description:					
Different layers easily identified	in the core camples				
	III THE COLE SOUTHNES!				
	in the gole samples.				
Grain size range: 0,01-80mm	titute <u>core samples.</u>				
Density or bulk density: /			-1		
Density or bulk density: / Amount of waste to be sampled			-1		
Density or bulk density: / Amount of waste to be sampled Geometric similarity of waste:	about 40L	/\/=	: πr2 v/2\ □ cuboid (\/=a b d	-1	□ other
Density or bulk density: / Amount of waste to be sampled. Geometric similarity of waste: cone (V=1/3πr².v) cylir		{V=	: πr² .v/2) □ cuboid (V=a.b.c		other
Density or bulk density: / Amount of waste to be sampled: Geometric similarity of waste: □ cone (V=1/3πr².v) ☑ cylir SAMPLING METHODOLOGY	about 40L nder (V= πr² .v)				other
Density or bulk density: / Amount of waste to be sampled. Geometric similarity of waste: cone (V=1/3πr².v) SAMPLING METHODOLOGY Describe/define the sub-popu	about 40L Ider (V= πr², v) half cylinder				other
Density or bulk density: / Amount of waste to be sampled: Geometric similarity of waste: □ cone (V=1/3πr².v) ☒ cyllr SAMPLING METHODOLOGY Describe/define the sub-populaccessibility: ☒Accessible ☐ (access problems affecting the area and	about 40L Ider (V= πr², v) half cylinder Idation or uniform sampling: co inaccessible I quantity of waste sampled)			;)	☐ other
Density or bulk density: / Amount of waste to be sampled. Geometric similarity of waste: ☐ cone (V=1/3πr².v) ☒ cyllr SAMPLING METHODOLOGY Describe/define the sub-populaccessibility: ☒Accessible ☐	about 40L Inder (V= πr², v) half cylinder Illation or uniform sampling: co inaccessible I quantity of waste sampled)			<u> </u>	other

Sample photograph







TEST REPORT

Report No: 2025-0118

General information: Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by:

Mag.Matjaž Cenčič

No. Offers:

P 153/2024

Sample information:

Subscription code: Description of the sample: Zagreb Landfill 10m - 15m Zagreb Landfill, 10m - 15m

Sampling time:

24.1.2025

Sample status:

The sample meets the admission criteria

Date of sample collection:

24.01.2025

Date of report:

20.03.2025

Sample ID:

Lab.No.: 2025 - 0118

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	result		measurement method uncertainty	beginning / end analyses	
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		1428		CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025	
2. Parameter-WASTE	Unit	limit values	result		measurement method uncertainty	beginning / end analyses	
Volatile substances	% d.m.		23,4	#	EN ISO 22167:2021 mod.	25.02.2025 25.02.2025	
Total organic carbon-TOC	% d.m.		10,5		SIST EN 15936:2022, Method B	17.03.2025 19.03.2025	
Net Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025	
pH (2.)	1		9,2		EN ISO 10390:2022, SIST EN 16179:2013	03.03.2025 03.03.2025	
Gross Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025	
Dry matter	%		76,64		EN 15934:2012, Method A	21.02.2025 27.01.2025	
Loss on ignition	% d.m.		17,64		SIST EN 15935:2021	24.01.2025 21.02.2025	
AT4 - Biological stability (3.)	mgO2/g d.m.		<5		ONORM S 2027-4:2012	05.03.2025 13.03.2025	

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT identification number: \$199144620, business account number: \$156 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values result	measurement method uncertainty	beginning / end analyses
Waste sampling	1	1	SIST EN 14899;2006	24.01.2025 24.01.2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO4
- (2.) Leaching of air-dry sample in water, T=20,5°C
- (3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts removed before analysis (ut%=36.0%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0118, which includes all sampling data and is an annex to the Test Report. Any additional information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by:

Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Approved by: Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Lovrenc na Dravskem polju i

2/2





Rezultati ozna čení z # oz neutureditírene se nanášájo na neskreditírano dejavnost

Lovreno na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

	SAMPLING RECORD 2025-0118			
ĺ	BASIC DATA			
I	Client Sample code: /			
I	Sample ID: Lab no.: 2025-0118			
I	Date and time of sampling: 24.1.2025 from 11:40 to 12:00			
ľ	Persons present: dr.sc. Željko Lebo, dipl.ing.grad.	<u> </u>		
ľ	GENERAL INFORMATION			
ľ	Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10			<u> </u>
ľ	The waste producer: Odlagalište otpada Jakuševec, Sajmišna cesta	ı 12 <u>, 10010, Zagreb,Hr</u>	vat	ska
ľ	Sampling location: Odlagalište otpada Jakuševec			
ľ	Sampling sub-location: spot sampling at the core drilling site			
ľ	Carried out by: IKEMA d. o. o., Lovrenc na Dravskem polju 4, 2324 !			<u> </u>
ľ	Sampler: Matic Borštnar Lampreht dipl. ekolog naravovarstvenik (UN	N), mag. Matjaz Cencio	2	
Į	SAMPLING OBJECT - WASTE DATA			
	Sample population: core sample			
	Waste number: /			
	Type of waste: deposited waste on landfill			
	Description of the sample:			
	Colour:			
ĺ				
	Smell: ☐strong ☑weak ☐without ☑odour			
	S. J. J. Dilletteres also M. Strongelations			
	Grain size: ☐ Uniform size ☑ different sizes			
	Estimated moisture content: 30%-50%			
	Estimated moisture content. 30 /6-00 /6			
	☐ liquid ☐ inhomogeneous ☐ in pie	eces	П	suspension
	densely liquid/pasty			emulsion
		wder form		dispersion
	⊠ solid			
	homogeneous dusting hygre	oscopic		<u></u> -
		<u> </u>		
		·		<u>.</u>
	Additional description:			
	Different toward against identified in the core agreemen			
	Different layers easily identified in the core samples.			
	Grain size range: 0,01-80mm			
	Density or bulk density: /			
	Amount of waste to be sampled: about 40L			<u> </u>
	Geometric similarity of waste:			<u> </u>
	cone (V=1/3πr ² .v) cylinder (V= πr ² .v) half cylinder (V= πr ² .v	//2) □ cuboid (V=a.b.c) [other
	SAMPLING METHODOLOGY			
	Describe/define the sub-population or uniform sampling: core sample	e		
	Accessibility: Accessible inaccessible			
	(access problems affecting the area and quantity of waste sampled)			
	Location and sampling points:			
	Sampling coordinates: N: 45°45'50.6" E: 16°01'34.1"			

Sampling approach: Probabilistic injudgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 5m will be one sample).
This sample is depth from 10m to 15m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO NO
Verification method: /
Number of increments: 1
The amount of each increment 40L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor) Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
BTEX VOC Total Hydrocarbons PAH
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☑ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration not preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
En lawart ID-1 405D
T _{zef.} = 3.4 °C T _{kef.} = 3.6 °C Equipment ID: I-185B
DEVIATION FROM THE SAMPLING PLAN: YES NO NO
DEVIATION FROM THE SAMPLING PLAN: YES NO NO
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: No Description of the deviation:
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny cloudy rainy snow other (dry and cold)
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS Air temperature: 2,5°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: WEATHER CONDITIONS

Sample photograph







TEST REPORT

Report No: 2025-0119

General information:

Name: Waste analysis

Client: OPĆINSKI SUD U NOVOM ZAGREBU "Turinina ulica 3, 10000 Zagreb

Sampled by: Mag.Matjaž Cenčič

No. Offers: P 153/2024

Sample information:

Subscription code: Zagreb Landfill, 15m - 20m Zagreb Landfill, 15m - 20m Zagreb Landfill, 15m - 20m

Sampling time: 24.1.2025

Sample status: The sample meets the admission criteria

Date of sample collection: 24.01.2025
Date of report: 20.03.2025

Sample ID: Lab, No.: 2025 - 0119

Analysis:

MEASUREMENTS:

1.Parameter- Leachate	Unit	limit values	result		measurement method uncertainty	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		1583		CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025
2. Parameter-WASTE	Unit	limit values	result		measurement method uncertainty	beginning / end analyses
Volatile substances	% d .m.		20,1	#	EN ISO 22167;2021 mod.	25.02.2025 25.03.2025
Total organic carbon-TOC	% d.m.		10,2		SIST EN 15936:2022, Method B	17.02.2025 19.02.2025
Net Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	1		9,2		EN ISO 10390:2022, SIST EN 16179:2013	06.03.2025 06.03.2025
Gross Calorific value	kJ/kg d.m.		<6000	#	SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		75,35		EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss on ignition	% d.m		19,86		SIST EN 15935:2021	10.02.2025 10.02.2025
AT4 - Biological stability (3.)	mgO2/g d.m		<5		ONORM S 2027-4:2012	05.03.2025 13.03.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.

T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.

Sampling	Unit	limit values	result	measurement method uncertainty	beginning / end analyses
Waste sampling	1		1	SIST EN 14899:2006	24.01.2025 24.01.2025

Results marked with # refer to a non-accredited activity

(1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO4

(2.) Leaching of air-dry sample in water, T=21.2°C

(3.) The analysis is carried out on a previously frozen sample, thawed for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts that were removed before the analysis (ut%=34.82%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No. 2025-0119, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flanjak Dipl. Eng. Chem. Technol.

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju. T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@lkema.sl, VAT Identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.







Rezultati označeni z#oz **sealureditirano** se nanašajo na neakreditirano dajavnost

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.lkema.si

WASTE SAMPLING RECORD

In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2025	j-01 19				
BASIC DATA					
Client Sample code: /					
Sample ID: Lab no.: 2025-01	19				
	4.1.2025 from 12:00 to 12:20				
Persons present: dr.sc. Željk	o Lebo, dipl.ing.građ.				
GENERAL INFORMATION					
	OVOM ZAGREBU , Turinina u				
	<u>lište otpada Jakuševec, Sajmi</u>	šna	cesta 12, 10010, Zagreb, F	irva	atska
Sampling location: Odlagališ					
	sampling at the core drilling sit				
	o., Lovrenc na Dravskem polju				
	preht dipl. ekolog naravovars	tver	nik (UN), mag. Matjaz Cenc	ic	
SAMPLING OBJECT - WAS	TE DATA				
Sample population: core sam	nple				
Waste number: /					
Type of waste: deposited wa	ste on landfill				
Description of the sample:					
Colour:					
Smell: ⊡strong ⊠weak □]without ⊠odour				
_	3				
Grain size: Uniform size					
Estimated majetum contents	200/ E00/				
Estimated moisture content:	<u>50%</u> -50%				
I liquid	☑inhomogeneous		in pieces		suspension
densely liquid/pasty	multiple aggregate layers	┢	grainy	-	emulsion
sludgy	M moist	┝	in powder form	卞	dispersion
⊠ solid	dry		hard		
homogeneous	dusting		hygroscopic		
Additional description:					
Difference Control of the Affin Affi	5- 41				
Different layers easily identified	in the core samples.				
Grain size range: 0,01-80mm				_	
Density or bulk density: /					
Amount of waste to be sampled	about 40f			_	
Geometric similarity of waste:	T WORK THE THE				· · · · · · · · · · · · · · · · · · ·
Cone (V=1/3πr².v) Σ cylir	nder (V≃ πr² .v) ☐ half cylinder	(V=	m².v/2)	c)	other
SAMPLING METHODOLOGY			<u> </u>		
Describe/define the sub-popu	ulation or uniform sampling: co	ire s	ample.		
Accessibility: Accessible	inaccessible				
(access problems affecting the area and				_	
Location and sampling points					
Sampling coordinates: N: 45°	'45'50.6" E: 16"01'34.1"				

Sampling approach: Probabilistic judgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 5m will be one sample).
This sample is depth from 15m to 20m.
Sampling equipment used: drilling rig, soil probe, hand shovel
Use of rented equipment: YES NO
Verification method: /
Number of increments: 1
The amount of each increment: 40L Observations during sampling (gas evolution, reactions, heat development, etc.):
Observations during sampling (gas evolution, reactions, near development, etc.).
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety
goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for:
BTEX VOC Total Hydrocarbons PAH
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☐ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration on the preserved Preser
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
T _{zač} .= 3,4 °C T _{konč} .= 3,6 °C Equipment ID: I-185B
DEVIATION FROM THE SAMPLING PLAN: YES \ NO _
Description of the deviation:
WEATHER CONDITIONS
Air temperature: 3,0°C
Weather: ☐ Sunny ☑ cloudy ☐ rainy ☐ snow ☐ other (dry and cold)
DELIVERY TO THE ANALYTICAL LABORATORY
Laboratory: IKEMA d.o.o.
Date of delivery: 24.1.2025
Date of delivery. 24.1.2020
C
Report by: Matjaž Cenčič
\int
A Add A Nada Va Manda Florial
Approved the report: Nataša Kante Flanjak
STATE OF STA
a Dravskem polju 4
For forest us from
Date of report: 13.3.2025

Sample photograph

63/75





Lovreno na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.sl



TEST REPORT

Report No: 2025-0120

General information: Name:

Waste analysis

Client:

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

He sampled:

mag. Matjaž Cenčič

No. Offers:

P 153/2024

Sample Information:

Subscription code:

Zagreb Landfill, 20m - 22m

Description of the sample:

Zagreb Landfill, 20m - 22m

Sampling time:

24.1.2025

Sample status:

The sample meets the admission criteria

Date of sample collection:

24.01.2025

Date of report:

20.03,2025

Sample ID:

Lab.No.: 2025 - 0120

Analysis:

MEASUREMENTS:

1. Parameter-Leachate	Unit	limit values	Result		measurement uncertainty	method	beginning / end analyses
Dissolved organic carbon-DOC (1.)	mg/kg d.m.		888			CEN/TR 16192:2020, SIST EN 12457-4,SIST EN 1484:1998	17.02.2025 17.02.2025
2. Parameter-Waste	Unit	limit values	Result		measurement uncertainty	method	beginning / end analyses
Volatile substances	% d.m.		21,9	#		EN ISO 22167:2021 mod.	25.02.2025 25.02.2025
Total organic carbon-TOC	% d.m.		10,6			SIST EN 15936:2022, Method B	17.02.2025 19.02.2025
Net Calorific value	kJ/kg d.m.		<6000	#		SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
pH (2.)	1	•	9,3			EN ISO 10390:2022, SIST EN 16179:2013	06.03.2025 06.03.2025
Gress Calorific value	kJ/kg d.m.		<6000	#		SIST-TS-CEN/TS 16023:2014	21.02.2025 21.02.2025
Dry matter	%		79,59			EN 15934:2012, Method A	27.01.2025 27.01.2025
Loss on ignition	% d.m.		25,85			SIST EN 15935:2021	10.02.2025 10.02.2025
AT4 - Biological stability (3.)	mgO2/g d.m.		<5			ONORM S 2027-4:2012	05.03.2025 13.03.2025

Results marked with # refer to a non-accredited activity

IKEMA d.o.a., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.
T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT Identification number: Si99144620, business account number: Si56 0215 0001 7804 620 with NLB d.d.

Sampling	Unit	limit values result	measurement method uncertainty	beginning / end analyses
Waste sampling	f	1	SIST EN 14899:2006	24.01.2025 24.01.2025

Results marked with # refer to a non-accredited activity

- (1.) leachate filtered through a 0.45um membrane filter, sample preserved with H3PO4
- (2.) Leaching of air-dry sample in water, T=21,5°C
- (3.) The analysis is carried out on a previously frozen sample, thaward for 24 hours in a temperature chamber. The result is given taking into account the percentage of inerts that were removed before the analysis (ut%=43,50%).

Remark:

The test results refer to the sampled population as defined in Sampling Report No 2025-0120, which includes all sampling data and is an annex to the Test Report. Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes.

Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data are provided upon request.

Report by:

Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Approved by: Head of Lab.
Nataša Kante Flanjak Dipl.Eng.Chem.Technol.









SLOVENSKA AKREDITACIJA SIST EN ISO/IEC 17025 LP-048

Rezultati označeni z # oz **neakreditirano** se nanašajo na neakreditirano dejavnost

Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju

WASTE SAMPLING RECORD

www.ikema.si

In accordance with SIST EN 14899:2006, Anex B, Table B.1

SAMPLING RECORD 2025	5-0120						
BASIC DATA							
Client Sample code: /							
Sample ID: Lab no.: 2025-01	20						
Date and time of sampling: 2	4.1.2025 from 12:20 to 12:40						
Persons present: dr.sc. Željk							
GENERAL INFORMATION							
Client: OPĆINSKI SUD U NO	OVOM ZAGREBU , Turinina u	ılica	3, 10000 Zagreb				
	lište otpada Jakuševec, Sajmi:			lrv:	atska		
Sampling location: Odlagališt			, , , , , , , , , , , , , , , , , , ,	-			
	sampling at the core drilling si	te					
	o., Lovrenc na Dravskem polju		2324 Lovrenc na Dr. poliu		*******		
	preht dipl. ekolog naravovars			ic			
SAMPLING OBJECT - WAS			, , , , , , , , , , , , , , , , , , , ,				
Sample population: core sam							
Waste number: /							
Type of waste: deposited was	ste on landfill						
Description of the sample:	or or i including						
Colour:							
Smell: ☐strong ☑weak ☐	lwithout Modour						
<u> </u>							
Grain size: Uniform size	different sizes						
Grain size: Uniform size different sizes							
Estimated moisture content:	<u>30%</u> -50%						
☐ liquid	inhomogeneous		in pieces		suspension		
liquid densely liquid/pasty	inhomogeneous multiple aggregate layers		grainy		emulsion		
liquid densely liquid/pasty sludgy	inhomogeneous multiple aggregate layers moist		grainy in powder form				
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy	inhomogeneous multiple aggregate layers moist		grainy in powder form		emulsion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid	inhomogeneous multiple aggregate layers moist dry		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous Additional description:	inhomogeneous inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous	inhomogeneous inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified	inhomogeneous inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous Additional description:	inhomogeneous inhomogeneous multiple aggregate layers moist dry dusting		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.		grainy in powder form hard		emulsion		
liquid densely liquid/pasty sludgy solid homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: Geometric similarity of waste:	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.		grainy in powder form hard hygroscopic		emulsion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: ☐ cone (V=1/3πr² .v) ☐ cylin	inhomogeneous multiple aggregate layers moist dry dusting in the core samples.	(V=	grainy in powder form hard hygroscopic		emulsion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: ☐ cone (V=1/3πr².v) ☐ cylin SAMPLING METHODOLOGY	inhomogeneous inutiple aggregate layers moist dry dusting in the core samples. about 25L der (V= πr² .v)		grainy in powder form hard hygroscopic m².v/2)		emulsion dispersion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: ☐ cone (V=1/3πr².v) ☐ cylin SAMPLING METHODOLOGY Describe/define the sub-popular	inhomogeneous imultiple aggregate layers moist dry dusting in the core samples. about 25L der (V= πr².v)		grainy in powder form hard hygroscopic m².v/2)		emulsion dispersion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: ☐ cone (V=1/3πr².v) ☐ cylin SAMPLING METHODOLOGY Describe/define the sub-populacessibility: ☐ Accessible	inhomogeneous imultiple aggregate layers moist dry dusting in the core samples. about 25L der (V= πr² .v) half cylinder llation or uniform sampling: co		grainy in powder form hard hygroscopic m².v/2)		emulsion dispersion		
□ liquid □ densely liquid/pasty □ sludgy □ solld □ homogeneous □ homogeneous □ lifterent layers easily identified □ Grain size range: 0,01-80mm □ Density or bulk density: / Amount of waste to be sampled: □ cone (V=1/3πr².v) □ cylin □ cone (V=1/3 rr².v)	inhomogeneous imultiple aggregate layers moist dry dusting in the core samples. about 25L der (V= πr².v) half cylinder lation or uniform sampling: co inaccessible liquantity of waste sampled)		grainy in powder form hard hygroscopic m².v/2)		emulsion dispersion		
☐ liquid ☐ densely liquid/pasty ☐ sludgy ☐ solid ☐ homogeneous Additional description: Different layers easily identified Grain size range: 0,01-80mm Density or bulk density: / Amount of waste to be sampled: ☐ cone (V=1/3πr².v) ☐ cylin SAMPLING METHODOLOGY Describe/define the sub-populacessibility: ☐ Accessible	inhomogeneous in multiple aggregate layers moist dry dusting in the core samples. about 25L about 25L aler (V= πr² .v) half cylinder llation or uniform sampling: co inaccessible quantity of waste sampled)		grainy in powder form hard hygroscopic m².v/2)		emulsion dispersion		

Sampling approach: Probabilistic injudgemental
Describe the sampling procedure or technique:
Core sample will be split in separate samples (about every 5m will be one sample).
This sample is depth from 20 m to 22m.
Sampling equipment used: drilling rig, soil probe, hand shove
Use of rented equipment: YES NO NO
Verification method: /
Number of increments: 1
The amount of each increment: 25L
Observations during sampling (gas evolution, reactions, heat development, etc.):
Details of on-site determinations:
Safety precautions: standard protective equipment (gloved hands, suitable footwear and clothing, safety vest, safety goggles, etc.).
SUB-SAMPLE PREPARATION AND PRE-TREATMENT:
Describe the location (field, workshop or lab, indoor or outdoor)
Outdoor, top of landfill
Procedure: sub-sample taken in the field for: BTEX VOC Total Hydrocarbons PAH PAH
PACKAGING, PRESERVATION, STORAGE, TRANSPORT
Packaging: ☐ Glass ☐ 50 L PE bag ☐ PE bottle ☐ metal packaging ☐ other
Preservation: Preserved with refrigeration Inot preserved
Storage/Storage: storage IKEMA d.o.o.
Transport: ⊠ car trunk ☐ Cooling bag ☐ Other
Tres. = 3.4 °C Tres. = 3.6 °C Equipment ID: I-185B
1 2 2 1 NOTE
DEVIATION FROM THE SAMPLING PLAN: YES NO NO
DEVIATION FROM THE SAMPLING PLAN: YES NO Solution:
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold)
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o.
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025 Report by: Matjaž Cenčič Approved the report: Nataša Kante Flanjak
DEVIATION FROM THE SAMPLING PLAN: YES
DEVIATION FROM THE SAMPLING PLAN: YES NO Description of the deviation: There are only 2m of core sample in this sample, because deposited waste is 22m deep. Because there was less sample we could not take 50l, so we took 25l of sample WEATHER CONDITIONS Air temperature: 3,0°C Weather: Sunny Cloudy rainy snow other (dry and cold) DELIVERY TO THE ANALYTICAL LABORATORY Laboratory: IKEMA d.o.o. Date of delivery: 24.1.2025 Report by: Matjaž Cenčič Approved the report: Nataša Kante Flanjak

Sample photograph





Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si



TEST REPORT

Report No: 2025-0141/1

General information:

Name: Technological analysis of landfill gases

Client: OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

Sampled by: IKEMA d.o.o. Lovrenc na Dravskem polju 4

2324 Lovrenc na Dravskem polju

Matjaž Cenčič

MEASURING EQUIPMENT FOR GAS MEASUREMENT:

- Gas Analyser OPTIMA I-163

- AHLBORN ALMEMO 2590-4AS: -sensor for T, RH,p,FHAD 46-C2

-T sensor R2E4(PT 100) -barometer FDA 612-SA

No. Offers: P 153/2024

Sample information:

Subscription code: Landfill gases CPT 2

Description of the sample: Landfill gas CPT 2-customer information

Sampling time: 24.1.2025

Sample status:

Date of sample collection: 24.01.2025
Date of report: 20.03.2025

Sample ID ... Lab.No.: 2025 - 0141/1

Analysis:

Weather conditions: ambient temperature 6,9°C, air pressure 1002 mb,

gas pressure 990 mb, gas temperature 8.1°C, wind speed< 1 m/s

MEASUREMENTS:

1. Parameter-Pilni	Unit	limit values	Result	measurement method uncertainty	beginning / end analyses
Oxygen-O2	%		8,63	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025
Methane CH4	%		35,25	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025
Cartion dioxide CO2	%		21,32	HM Internal Method 101 Edition 11	24.01,2025 24.01,2025
Hydrogen - H2	ppm		15	HM Internal Method 101 Edition	24.01.2025 24.01.2025
Hydrogen sulphide - H2S	ррпі		<5	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025

Lat(WGS84): 45,764488 Lon(EGS84):160265562

IKEMA d.o.o., Lowrenc ne Dravskem polju 4, 2324 Lovrenc na Dravskem polju. T:+386(0)2 790 0060, F:+386(0)2 7900061, E:info@ikema.si, VAT Identification number: SI99144620, business account number: SI56 0215 0001 7804 620 with NLB d.d.

Remark:

Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes. Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data

Report by: Nataša Kante Flanjak Dipl.Eng.Chem.Technol. Approved by: Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

MSTITULA LC -274



Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju +386 (0)2 790 00 60 www.ikema.si



TEST REPORT

Report No: 2025-0141/2

General Information:

Name: Client : Sampled by: Technological analysis of landfill gases

OPĆINSKI SUD U NOVOM ZAGREBU, Turinina ulica 3, 10000 Zagreb

IKEMA d.o.o. Lovrenc na Dravskem polju 4 2324 Lovrenc na Dravskem polju

Matjaž Cenčič

MEASURING EQUIPMENT FOR GAS MEASUREMENT:

- Gas Analyser OPTIMA 1-163

- AHLBORN ALMEMO 2590-4AS: -sensor for T, RH,p,FHAD 46-C2

-T sensor R2E4(PT 100) -barometer FDA 612-SA

No. Offers:

P 153/2024

Sample Information:

Subscription code:

Landfill gases CPT 1

Description of the sample:

Landfill gas CPT 1-customer infrormation

Sampling time:

24.1.2025

Sample status:

Date of sample collection :

24.01.2025

Date of report:

20.03.2025

Sample ID:

Lab.No.: 2025 - 0141/2

Analysis:

Weather conditions: ambient temperature 6,8°C, air pressure 1002 mb,

gas pressure 989 mb, gas temperature 8,5°C, wind speed< 1 m/s

MEASUREMENTS:

1. Parameter-Plini	Unit	limit values result	measurement method uncertainty	beginning / end analyses
Oxygen O2	%	17,82	HM Internal Method 101 Edition	24.01.2025 24.01.2025
Methane CH4	%	7,19	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025
Carbon dioxide CO2	%	5,62	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025
Hydrogen - H2	ppm	<10	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025
Hydrogen sulphide - H2S	ppm	<5	HM Internal Method 101 Edition 11	24.01.2025 24.01.2025

Lat(WGS84): 45,764788 Lon(EGS84):16,0268480

IKEMA d.o.o., Lovrenc na Dravskem polju 4, 2324 Lovrenc na Dravskem polju.
T:+386(0)2 790 0060, F:+386(0)2 7900061, E:Info@ikema.si, VAT identification number: SI99144620, business account number: SI56 0215 0001 7604 620 with NLB d.d.

Remark:

Any further information on the testing carried out is available from the laboratory.

The sample was properly stored from the time it was received in the laboratory until the analyses were completed.

The report may not be reproduced, except in full, without the written consent of the laboratory. It may not be used for advertising purposes. Written complaints are taken into account within eight days from the date of receipt of the test report.

Measurement uncertainty data

Report by:

Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

Approved by: Head of Lab. Nataša Kante Flanjak Dipl.Eng.Chem.Technol.

water Order of State