

SURAT PERNYATAAN PENULIS
(Cover Letter)

Bogor, 10 Februari 2024

Yth. Bapak Budi Warsito - Editor In Chief

Jurnal Ilmu Lingkungan

Graduate Program of Environmental Studies, School of Postgraduate Student

Universitas Diponegoro

Pengiriman Artikel Ke Jurnal Ilmu Lingkungan – Universitas Diponegoro

Saya bermaksud mengirimkan artikel yang berjudul, “**Efisiensi Penghilangan Polutan Air Limbah dari Kegiatan Pewarnaan di Industri Tekstil Studi Kasus PT. ABC**” untuk dipublikasikan pada Jurnal Ilmu Lingkungan

Saya menyatakan bahwa artikel yang dikirim untuk publikasi dalam Jurnal Ilmu Lingkungan – Universitas Diponegoro merupakan **karya asli/orisinil, belum pernah dipublikasikan** dalam bahasa Indonesia atau bahasa lainnya pada jurnal lainnya, **serta tidak sedang berada dalam proses** publikasi di Jurnal lain. Artikel yang saya ajukan ini membahas hasil penelitian tentang evaluasi kinerja pengolahan air limbah dari proses pewarnaan pada salah satu industri tekstil studi kasus PT. ABC. Hasil penelitian ini penting karena menjadi bahan evaluasi bagi perusahaan untuk memastikan kinerja IPAL dapat berkelanjutan dan sebagai bahan acuan dalam menilai kesiapan PT. ABC untuk mencapai target jangka panjang pada keberlanjutan energi.

Artikel ini diharapkan dapat bermanfaat bagi pembaca khususnya pada bidang Teknik Lingkungan
Mohon semua pemberitaan terkait pemrosesan artikel dapat diinformasikan melalui:

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Terima kasih,

Salam,



Nendia Nurisni

Mahasiswi Program Studi Ilmu Pengelolaan Sumberdaya Alam dan Lingkungan
Sekolah Pasca Sarjana IPB University

LABORATORY TEST RESULTS

Job Number : 2010005		Date : January 16, 2020					
Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS			Attention : Mr. Irwan Supriadi			Position :	
Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2010005-2/10	Inlet Dyeing	Waste Water	03/01/2020	09:48	03/01/2020	14:40	03/01 to 16/01

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	39.0	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	313	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	28	200	400	mg/L	SNI 06.6989.3-2004
II. Chemical Properties						
1	pH	8.88	6.0 - 9.0		pH Units	SNI 06.6989.11-2004
2	Iron, Fe	0.114	5	10	mg/L	SNI 6989-82:2018
3	Manganese, Mn	<0.007	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	<0.0009	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	0.019	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.070	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.009	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.014	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd **	0.002	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.002	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA SW 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA SW 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	0.032	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.412	0.05	0.1	mg/L	SNI 6989.70-2009
19	Fluoride, F	<0.02	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂	0.23	1	2	mg/L	APHA 4500 Cl G-2017
21	Free Ammonia, NH ₃ -N **	0.036	1	5	mg/L	APHA 4500-NH3 F-2012
22	Nitrate, NO ₃ -N	0.050	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.0045	1	3	mg/L	SNI 06-6989.9-2004
24	Biochemical Oxygen Demand, BOD ₅	78	50	150	mg/L	SNI 6989.72-2009
25	Chemical Oxygen Demand, COD	254.2	100	300	mg/L	SNI 6989.2:2009
26	Surfactants, MBAS	0.805	5	10	mg/L	SNI 06-6989.51-2005
27	Phenol **	0.326	0.5	1.0	mg/L	APHA 5530-C-2017
28	Plant Oil	<1.4	5	10	mg/L	SNI 6989.10-2011
29	Mineral Oil	<1.4	10	50	mg/L	SNI 6989.10-2011
30	Oil and Grease	<1.4	-	-	mg/L	SNI 6989.10-2011

* Governor of West Java Decree No. 6/1999, Waste Water Standard Regulation for industrial activities

** Not Accreditation KAN LP-516-IDN

■ = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2010005		Date : January 16, 2020					
Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS		Attention : Mr. Irwan Supriadi				Position :	
Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2010005-3/10	Outlet Dyeing	Waste Water	03/01/2020	09:50	03/01/2020	14:40	03/01 to 16/01

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	30.3	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	452	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	10	200	400	mg/L	SNI 06.6989.3-2004
II. Chemical Properties						
1	pH	8.56	6.0 - 9.0		pH Units	SNI 06.6989.11-2004
2	Iron, Fe	0.038	5	10	mg/L	SNI 6989-82:2018
3	Manganese, Mn	0.075	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	<0.0009	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	0.022	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.224	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.004	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.004	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd **	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.002	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA SW 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA SW 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.009	0.05	0.1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.30	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂	0.20	1	2	mg/L	APHA 4500 Cl G-2017
21	Free Ammonia, NH ₃ -N **	0.017	1	5	mg/L	APHA 4500-NH3 F-2012
22	Nitrate, NO ₃ -N	1.357	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.9284	1	3	mg/L	SNI 06-6989.9-2004
24	Biochemical Oxygen Demand, BOD ₅	9	50	150	mg/L	SNI 6989.72-2009
25	Chemical Oxygen Demand, COD	31.2	100	300	mg/L	SNI 6989.2:2009
26	Surfactants, MBAS	0.422	5	10	mg/L	SNI 06-6989.51-2005
27	Phenol **	0.236	0.5	1.0	mg/L	APHA 5530-C-2017
28	Plant Oil	<1.4	5	10	mg/L	SNI 6989.10-2011
29	Mineral Oil	<1.4	10	50	mg/L	SNI 6989.10-2011
30	Oil and Grease	<1.4	-	-	mg/L	SNI 6989.10-2011

* Governor of West Java Decree No. 6/1999, Waste Water Standard Regulation for Industrial activities

** Not Accreditation KAN LP-518-IDN

LABORATORY TEST RESULTS

Job Number : 2011130

Date : May 6, 2020

Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS

Attention : Mr. Irwan Supriadi

Position :

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2011130-1/2	Inlet Dyeing	Waste Water	23/04/2020	09:00	23/04/2020	11:15	23/04 to 06/05

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	43.3	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	610	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	40	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	9.47	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.129	5	10	mg/L	SNI 6989-82-2018
3	Dissolved Manganese, Mn	0.268	2	5	mg/L	SNI 6989-82-2018
4	Barium, Ba	0.0493	2	3	mg/L	SNI 6989-82-2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82-2018
6	Zinc, Zn	0.079	5	10	mg/L	SNI 6989-82-2018
7	Hexavalent Chromium, Cr ⁶⁺	0.003	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.010	0.5	1	mg/L	SNI 6989-82-2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82-2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & JKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82-2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82-2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82-2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82-2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.009	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.58	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	<0.03	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	1.776	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.397	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.0166	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	9.874	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	101	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	285.0	100	300	mg/L	SNI 6989.2-2009
27	Surfactants, MBAS	1.704	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.261	0.5	1	mg/L	APHA 5530-C-2012
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	8400	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

 = Out of Specification

LABORATORY TEST RESULTS

 Job Number : 2011130 Date : May 6, 2020

 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: -

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2011130-2/2	Outlet Dyeing	Waste Water	23/04/2020	09:30	23/04/2020	11:15	23/04 to 06/05

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	33.8	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	672	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	14	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	8.96	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.081	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.136	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0325	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.408	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.008	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.28	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	<0.03	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	1.332	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.053	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	<0.0010	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	6.399	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	27	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	54.6	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.507	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.177	0.5	1	mg/L	APHA 5530-C-2012
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	1600	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

ANALYTICAL REPORT

JOB NUMBER : 2112850

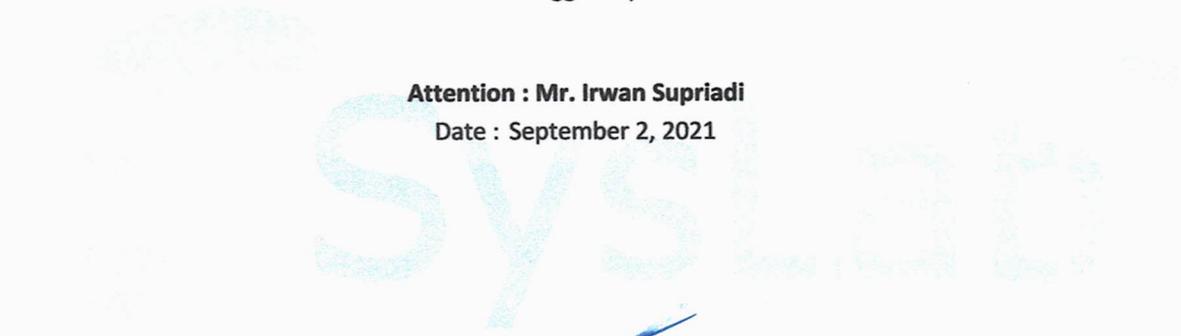
Prepared For :

PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS

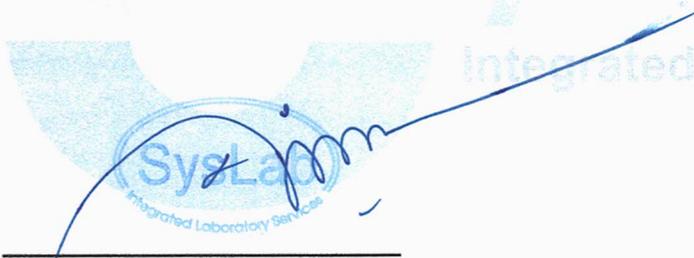
Jl. Raya Jakarta Bogor KM. 29
Cimanggis Depok

Attention : Mr. Irwan Supriadi

Date : September 2, 2021



SysLab
Integrated Laboratory Services



Signature

Name : Armelco Uyun

Title : Technical Manager

PT SYSLAB

Plaza Amsterdam Blok D-2 Sentul City Bogor

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Website : <http://www.syslab.co.id>

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SAMPLE INFORMATION

Date : September 2, 2021

Job Number : 2112850
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS
 Attention : Mr. Irwan Supriadi
 Sampled by : Banu P.

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis	Position	
								Latitude	Longitude
2112850-1/2	Outlet Dyeing	Waste Water	19/08/2021	10:08	19/08/2021	13:10	19/08 to 02/09	S: 06° 21' 12.98"	E: 106° 51' 24.78"
2112850-2/2	Inlet Dyeing	Waste Water	19/08/2021	10:15	19/08/2021	13:10	19/08 to 02/09	S: 06° 21' 13.54"	E: 106° 51' 24.96"

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LABORATORY TEST RESULTS

Job Number : 2112850 Date : September 2, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
 E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2112850-1/2	Outlet Dyeing	Waste Water	19/08/2021	10:08	19/08/2021	13:10	19/08 to 02/09

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.2	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	659	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	12	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.43	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.082	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.097	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0073	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.179	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.005	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.013	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	0.003	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.005	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.32	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.173	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	2.043	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.495	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	3.07	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	25	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	92.5	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.031	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.095	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	20	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

LABORATORY TEST RESULTS

Job Number : 2112850				Date : September 2, 2021			
Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS				Attention : Mr. Irwan Supriadi		Position: S: 06° 21' 13.54" E: 106° 51' 24.96"	
Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2112850-2/2	Inlet Dyeing	Waste Water	19/08/2021	10:15	19/08/2021	13:10	19/08 to 02/09

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	34.9	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	648	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	17	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.81	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.152	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.105	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0109	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.253	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.007	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.017	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	0.005	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.007	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.45	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.09	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	3.637	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.099	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.009	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	11.73	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	146	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	486.0	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.111	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.205	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	52	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

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LABORATORY TEST RESULTS

Job Number : 2013587 Date : January 8, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2013587-1/2	Inlet Dyeing	Waste Water	17/12/2020	09:30	17/12/2020	13:37	17/12 to 08/01

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	34.3	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	446	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	54	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	8.25	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.243	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.055	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0116	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.441	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.003	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.012	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.013	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.22	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.401	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.027	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.001	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	1.81	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	31	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	102.6	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.364	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.239	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	1100	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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LABORATORY TEST RESULTS

Job Number : 2013587 Date : January 8, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position : S: 06° 21' 13.54"
 E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2013587-2/2	Outlet Dyeing	Waste Water	17/12/2020	09:33	17/12/2020	13:37	17/12 to 08/01

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.7	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	599	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	14	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.48	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.070	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.036	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0077	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.167	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.010	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.12	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.07	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.348	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	2.055	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	1.000	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	5.12	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	8	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	25.3	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.032	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.091	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	700	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

LABORATORY TEST RESULTS

Job Number : 2110176

Date : January 2, 2021

Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS

Attention : Mr. Irwan Supriadi

Position: S: 06° 21' 13.54"

E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2110176-1/2	Inlet Dyeing	Waste Water	14/01/2021	09:45	14/01/2021	13:37	14/01 to 01/02

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	24.0	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	516	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	12	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	8.58	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.115	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.119	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0205	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.041	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.003	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.006	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	0.012	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	0.040	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.006	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	<0.02	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	10.000	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.096	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.007	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	10.97	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	111	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	376.4	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.399	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.119	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	9200	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PEMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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LABORATORY TEST RESULTS

Job Number : 2110176 Date : January 2, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
 E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2110176-2/2	Outlet Dyeing	Waste Water	14/01/2021	09:45	14/01/2021	13:37	14/01 to 01/02

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.4	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	599	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	9	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	6.80	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.114	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.186	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0133	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.177	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	0.011	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.006	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.13	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.07	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.337	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	9.263	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.002	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	44.99	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	17	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	61.1	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.052	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.059	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	2100	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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LABORATORY TEST RESULTS

Job Number : 2111174 Date : April 21, 2021

Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 13.54"

E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2111174-1/2	Inlet Dyeing	Waste Water	08/04/2021	09:45	08/04/2021	10:45	08/04 to 21/04

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	37.5	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	438	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	111	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.24	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.226	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.031	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0412	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	0.057	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	1.357	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.004	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.025	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	0.007	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.007	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.31	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl ₂ -G-2017
21	Ammonia, NH ₃ -N	12.319	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.027	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.003	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	55.83	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	143	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	481.0	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	1.002	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.232	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	9200	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

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□ = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2111174 Date : April 21, 2021
Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2111174-2/2	Outlet Dyeing	Waste Water	08/04/2021	10:00	08/04/2021	10:45	08/04 to 21/04

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.1	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	742	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	7	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.16	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.039	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.111	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0228	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.435	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	0.007	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.004	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.25	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	2.556	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.655	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.067	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	9.47	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	13	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	43.0	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.035	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.108	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	1700	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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ANALYTICAL REPORT

JOB NUMBER : 2112763

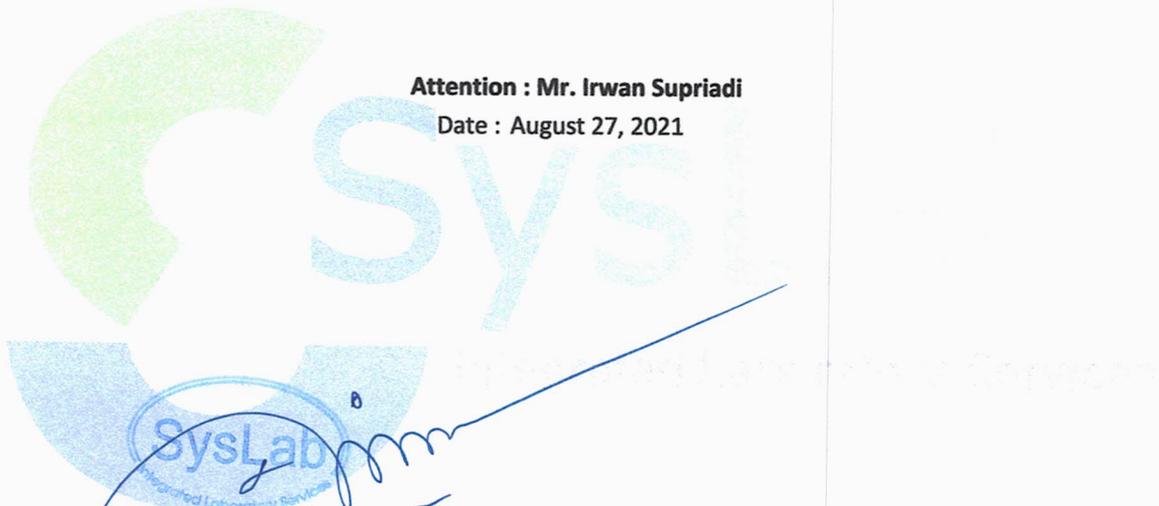
Prepared For :

PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS

Jl. Raya Jakarta Bogor KM. 29
Cimanggis Depok

Attention : Mr. Irwan Supriadi

Date : August 27, 2021



SysLab
Integrated Laboratory Services

Signature

Name : Armelco Uyun

Title : Technical Manager

PT SYSLAB

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SAMPLE INFORMATION

Date : August 27, 2021

Job Number : 2112763
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS
 Attention : Mr. Irwan Supriadi
 Sampled by : Banu P.

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis	Position	
								Latitude	Longitude
2112763-1/2	Outlet Dyeing	Waste Water	12/08/2021	09:40	12/08/2021	13:53	12/08 to 27/08	S: 06° 21' 12.98"	E: 106° 51' 24.78"
2112763-2/2	Inlet Dyeing	Waste Water	12/08/2021	09:55	12/08/2021	13:53	12/08 to 27/08	S: 06° 21' 13.54"	E: 106° 51' 24.96"

LABORATORY TEST RESULTS

Job Number : 2112763 Date : August 27, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2112763-1/2	Outlet Dyeing	Waste Water	12/08/2021	09:40	12/08/2021	13:53	12/08 to 27/08

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.3	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	624	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	11	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	7.32	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.076	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.183	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0102	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.418	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.005	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	<0.02	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.654	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	1.958	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.609	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	4.78	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	28	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	91.7	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.029	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.078	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	210	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

LABORATORY TEST RESULTS

Job Number : 2112763 Date : August 27, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 13.54"
E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2112763-2/2	Inlet Dyeing	Waste Water	12/08/2021	09:55	12/08/2021	13:53	12/08 to 27/08

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	39.8	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	676	2000	4000	mg/L	SNI 06-6989.27-2005
3	Total Suspended Solids, TSS	38	200	400	mg/L	SNI 06-6989.3-2004
II. Chemical Properties						
1	pH	8.11	6.0 - 9.0		pH Units	SNI 06-6989.11-2004
2	Dissolved Iron, Fe	0.156	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.150	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0181	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.635	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.009	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.009	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	<0.02	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.09	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	3.688	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.059	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.003	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	12.67	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	71	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	233.9	100	300	mg/L	SNI 6989.2:2009
27	Surfactants, MBAS	0.102	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.142	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform (Membrane Filter) **	330	10000		MPN/100 mL	APHA 9221B-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

■ = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2114609 Date : December 31, 2021
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
 E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2114609-1/5	Inlet Dyeing	Waste Water	16/12/2021	09:35	16/12/2021	14:00	16/12 to 31/12

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	39.8	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	407	2000	4000	mg/L	SNI 06-6989.27-2019
3	Total Suspended Solids, TSS	65	200	400	mg/L	SNI 06-6989.3-2019
II. Chemical Properties						
1	pH	8.90	6.0 - 9.0		pH Units	SNI 06-6989.11-2019
2	Dissolved Iron, Fe	0.105	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.036	2	5	mg/L	SNI 6989-82:2018
4	Barium, Ba	0.0091	2	3	mg/L	SNI 6989-82:2018
5	Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Zinc, Zn	0.102	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.004	0.1	0.5	mg/L	SNI 6989.71-2009
8	Chromium, Cr	0.021	0.5	1	mg/L	SNI 6989-82:2018
9	Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Arsenic, As	0.0040	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.004	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.12	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.09	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	5.810	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.029	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.001	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	26.36	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	87	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	289.5	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.884	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.189	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	980	10000		MPN/100 mL	APHA 9223-2017

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

■ = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2210258 Date : February 4, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 13.54''
E: 106° 51' 24.96''

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2210258-1/2	Inlet Dyeing	Waste Water	20/01/2022	10:20	20/01/2022	16:30	20/01 to 04/02

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	36.2	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	493	2000	4000	mg/L	SNI 06-6989.27-2019
3	Total Suspended Solids, TSS	21	200	400	mg/L	SNI 06-6989.3-2019
II. Chemical Properties						
1	pH	8.00	6.0 - 9.0		pH Units	SNI 06-6989.11-2019
2	Dissolved Iron, Fe	0.132	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.067	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0454	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.251	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.004	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	0.016	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.009	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.03	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.09	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	2.318	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	1.167	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.005	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	7.13	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	76	50	150	mg/L	SNI 6989.72 2009
26	Chemical Oxygen Demand, COD	252.9	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.939	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.101	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	2200	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

 = Out of Specification



LABORATORY TEST RESULTS

Job Number : 2210258 Date : February 4, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
 E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2210258-2/2	Outlet Dyeing	Waste Water	20/01/2022	10:35	20/01/2022	16:30	20/01 to 04/02

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	30.3	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	541	2000	4000	mg/L	SNI 06-6989.27-2019
3	Total Suspended Solids, TSS	6	200	400	mg/L	SNI 06-6989.3-2019
II. Chemical Properties						
1	pH	7.60	6.0 - 9.0		pH Units	SNI 06-6989.11-2019
2	Dissolved Iron, Fe	<0.017	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.102	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0286	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.150	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.007	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	<0.02	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.030	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.698	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.107	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	1.70	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	25	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	83.2	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.063	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.084	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	1190	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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LABORATORY TEST RESULTS

Job Number : 2211333 Date : May 9, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 13.54" E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2211333-1/3	Inlet Dyeing	Waste Water	14/04/2022	09:30	18/04/2022	08:30	18/04 to 09/05

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	32.5	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	554	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	11	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	9.48	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved Iron, Fe	<0.017	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	<0.007	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0064	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.057	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.009	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.67	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	3.921	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.039	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.001	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	12.53	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	73	50	150	mg/L	SNI 6989.72 2009
26	Chemical Oxygen Demand, COD	244.7	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.205	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.115	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	670	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

 = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2211333 Date : May 9, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2211333-2/3	Outlet Dyeing	Waste Water	14/04/2022	09:36	18/04/2022	08:30	18/04 to 09/05

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	26.9	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	601	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	8	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	8.07	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved Iron, Fe	<0.017	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	<0.007	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0022	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.297	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.007	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.33	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	3.707	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	1.151	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.118	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	12.52	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	11	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	38.0	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.153	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.048	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	900	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

LABORATORY TEST RESULTS

Job Number : 2213052 Date : September 6, 2022

Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position : S: 06° 21' 13.54"
E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2213052-1/2	Inlet Dyeing	Waste Water	25/08/2022	09:00	25/08/2022	13:30	25/08 to 06/09

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	31.2	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	503	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	23	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	8.20	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved Iron, Fe	0.054	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.012	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	<0.0009	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.202	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	0.004	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	0.008	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.006	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	1.35	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.192	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.049	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.003	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	0.24	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	73	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	244.3	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	1.004	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.108	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	218	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

= Out of Specification

LABORATORY TEST RESULTS

Job Number : 2213052 Date : September 6, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2213052-2/2	Outlet Dyeing	Waste Water	25/08/2022	09:09	25/08/2022	13:30	25/08 to 06/09

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	30.5	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	675	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	5	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	7.71	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved Iron, Fe	0.039	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.115	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	<0.0009	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	<0.011	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.270	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.005	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.15	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.132	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.172	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.010	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	0.31	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	20	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	67.6	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.209	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.018	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	179	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

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LABORATORY TEST RESULTS

Job Number : 2213930 Date : November 9, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 13.54"
 E: 106° 51' 24.96"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2213930-1/2	Inlet Dyeing	Waste Water	27/10/2022	09:00	27/10/2022	10:57	27/10 to 09/11

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	24.7	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	537	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	19	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	9.53	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved iron, Fe	0.165	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.012	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0069	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	0.014	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.214	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.006	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	1.10	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.271	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	0.400	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.004	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	1.62	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	85	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	283.6	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	1.078	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.051	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	63	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN

■ = Out of Specification

LABORATORY TEST RESULTS

Job Number : 2213930 Date : November 9, 2022
 Customer : PT YKK ZIPPER INDONESIA FACTORY CIMANGGIS Attention : Mr. Irwan Supriadi Position: S: 06° 21' 12.98"
 E: 106° 51' 24.78"

Lab. Sample	Customer Sample ID	Matrix	Date Sampled	Time Sampled	Date Received	Time Received	Interval Analysis
2213930-2/2	Outlet Dyeing	Waste Water	27/10/2022	09:10	27/10/2022	10:57	27/10 to 09/11

NO.	TEST DESCRIPTION	RESULT	REGULATORY LIMIT*		UNIT	METHOD
			I	II		
I. Physical Properties						
1	Temperature	29.9	38	40	°C	SNI 06-6989.23-2005
2	Total Dissolved Solids, TDS	729	2000	4000	mg/L	SNI 6989.27-2019
3	Total Suspended Solids, TSS	13	200	400	mg/L	SNI 6989.3-2019
II. Chemical Properties						
1	pH	7.53	6.0 - 9.0		pH Units	SNI 6989.11-2019
2	Dissolved Iron, Fe	0.131	5	10	mg/L	SNI 6989-82:2018
3	Dissolved Manganese, Mn	0.104	2	5	mg/L	SNI 6989-82:2018
4	Total Barium, Ba	0.0096	2	3	mg/L	SNI 6989-82:2018
5	Total Copper, Cu	0.014	2	3	mg/L	SNI 6989-82:2018
6	Total Zinc, Zn	0.250	5	10	mg/L	SNI 6989-82:2018
7	Hexavalent Chromium, Cr ⁶⁺	<0.002	0.1	0.5	mg/L	SNI 6989.71-2009
8	Total Chromium, Cr	<0.003	0.5	1	mg/L	SNI 6989-82:2018
9	Total Cadmium, Cd	<0.001	0.05	0.1	mg/L	SNI 6989-82:2018
10	Total Mercury, Hg	<0.0017	0.002	0.005	mg/L	US EPA 3005A-1992 & IKM-109 (ICP OES)
11	Total Lead, Pb	<0.003	0.1	1	mg/L	SNI 6989-82:2018
12	Total Tin, Sn	<0.021	2	3	mg/L	SNI 6989-82:2018
13	Total Arsenic, As	<0.0006	0.1	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
14	Total Selenium, Se	<0.002	0.05	0.5	mg/L	US EPA 3005A-1992 & APHA 3120B-2017
15	Total Nickel, Ni	<0.006	0.2	0.5	mg/L	SNI 6989-82:2018
16	Total Cobalt, Co	<0.008	0.4	0.6	mg/L	SNI 6989-82:2018
17	Cyanide, CN **	<0.006	0.05	0.5	mg/L	US EPA 335.2-1980
18	Hydrogen Sulfide, H ₂ S	0.004	0.5	1	mg/L	SNI 6989.70-2009
19	Fluoride, F	0.50	2	3	mg/L	SNI 06-6989.29-2005
20	Free Chlorine, Cl ₂ **	0.08	1	2	mg/L	APHA 4500 Cl G-2017
21	Ammonia, NH ₃ -N	0.154	5	10	mg/L	SNI 06-6989.30-2005
22	Nitrate, NO ₃ -N	3.300	20	30	mg/L	SNI 6989.79-2011
23	Nitrite, NO ₂ -N	0.443	1	3	mg/L	SNI 06-6989.9-2004
24	Total N **	4.43	30	60	mg/L	Calculation
25	Biochemical Oxygen Demand, BOD ₅	22	50	150	mg/L	SNI 6989.72-2009
26	Chemical Oxygen Demand, COD	75.0	100	300	mg/L	SNI 6989.2:2019
27	Surfactants, MBAS	0.064	5	10	mg/L	SNI 06-6989.51-2005
28	Phenol **	0.010	0.5	1	mg/L	APHA 5530-C-2017
29	Oil and Grease	<1.4	10	20	mg/L	SNI 6989.10-2011
30	Total Coliform **	1430	10000		MPN/100 mL	IKM-95 (Enzyme Substrate)

* Waste Water Standard Quality Regulations PERMENLH No. 5/2014 State Ministry of Environment (Attachment XLVII)

** Not Accreditation KAN LP-516-IDN