

TEST REPORT

Official Technical Translation & Environmental Compliance Record

1. **Sampling Location:** Inlet cooling water of Phu My Fertilizer Plant
2. **Date of Monitoring:** 27/02/2023 (09:50)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Cadmium (Cd)	mg/l	ASTM-D3557:17	ND (<0.0023)
2	Total Phosphorus (T-P)	mg/l	TCVN 6202:2008	ND (<0.020)
3	Total Iron (T-Fe)	mg/l	US EPA 3015A & SMEWW 3120 B: 2017	0.170
4	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2017	ND (<5)
5	Mineral Oil and Grease	mg/l	SMEWW 5520B&F: 2017	0.3
6	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B: 2017	ND (<0.050)
7	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2017	ND (<0.050)
8	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B: 2017	ND (<0.050)
9	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2017	ND (<0.050)
10	Arsenic (As)	mg/l	ASTM-D2972:15	ND (<0.010)
11	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
12	Barium (Ba)	mg/l	US EPA 3015A & US EPA 200.8	ND (<0.025)
13	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	7.3
14	pH	-	TCVN 6492:2011	7.3
15	Temperature	°C	SMEWW 2550B:2017	30.0
16	Cyanide (CN-)	mg/l	TCVN 6181-1996	ND (<0.008)
17	Lead (Pb)	mg/l	ASTM-D3559:15	ND (<0.010)
18	Total Coliform	MPN/100ml	TCVN 6187-2:2020	24 x 10 ⁻¹
19	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
20	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.47
21	Residual Chlorine	mg/l	HACH Method 8021	0.07
22	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)
23	Trivalent Chromium (Cr ₃ ⁺)	mg/l	Ref: TCVN 6658:2000 / SMEWW 3120B	ND (<0.050)
24	Sulfide (S ₂ ⁻)	mg/l	SMEWW 4500 S ₂ -D:2017	ND (<0.12)
25	Color	mg/l Pt	TCVN 6185:2015	ND (<5)
26	Total Nitrogen (T-N)	mg/l	TCVN 6638:2000	ND (<10.0)
27	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	13
28	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2017	1.2

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
29	Total Organic Carbon (TOC)	mg/l	TCVN 6634:2000	1.73
30	Tin (Sn)	mg/l	SMEWW 3111B:2017	ND (<0.03)
31	Total Phenol	mg/l	TCVN 6216:1996	ND (<0.001)

Notes / Remarks:

- Sample collected and analyzed by CEMRB according to official service contract.
- ND: Not Detected below method detection limit.
- Test results are only valid for the analyzed samples at the time and location indicated.

HEAD OF ENVIRONMENTAL ADVISORY / TESTING DIVISION

DIRECTOR / VICE DIRECTOR

Nguyen Thi Le Hang / Nguyen Thi Hang

Le Tuan Kiet / Nguyen Xuan Son / Vo Phi Long

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TEST REPORT

Official Technical Translation & Environmental Compliance Record

1. **Sampling Location:** Inlet cooling water of Phu My Fertilizer Plant
2. **Date of Monitoring:** 29/06/2023 (11:20)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	31
2	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
3	Cyanide (CN-)	mg/l	TCVN 6181-1996	ND (<0.008)
4	Residual Chlorine	mg/l	HACH Method 8021	0.04
5	Mineral Oil and Grease	mg/l	SMEWW 5520B&F: 2023	0.4
6	Sulfide (S ²⁻)	mg/l	SMEWW 4500 S ²⁻ -D:2023	ND (<0.12)
7	Color	mg/l Pt	TCVN 6185:2015	ND (<5)
8	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
9	Total Coliform	MPN/100ml	TCVN 6187-2:2020	15 x 10 ²
10	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.23
11	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
12	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	7.3
13	pH	-	TCVN 6492:2011	6.6
14	Temperature	°C	SMEWW 2550B:2023	34.3
15	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.1
16	Total Nitrogen (T-N)	mg/l	TCVN 6638:2000	ND (<10.0)
17	Total Phosphorus (T-P)	mg/l	TCVN 6202:2008	0.096
18	Total Iron (T-Fe)	mg/l	TCVN 6177:1996	0.43
19	Lead (Pb)	mg/l	ASTM-D3559:D-15	0.0146
20	Barium (Ba)	mg/l	US EPA 3015A & SMEWW 3120B: 2023	ND (<0.030)
21	Trivalent Chromium (Cr ³⁺)	mg/l	Ref: TCVN 6658:2000 / SMEWW 3120B	ND (<0.050)
22	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
23	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
24	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
25	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
26	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
27	Arsenic (As)	mg/l	ASTM-D2972:C-15	0.218
28	Hexavalent Chromium (Cr ⁶⁺)	mg/l	TCVN 6658:2000	ND (<0.010)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
29	Tin (Sn)	mg/l	SMEWW 3111B:2017	ND (<0.03)
30	Total Phenol	mg/l	TCVN 6216:1996	ND (<0.001)
31	Total Organic Carbon (TOC)	mg/l	TCVN 6634:2000	4.39

Notes / Remarks:

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TEST REPORT

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1. **Sampling Location:** Inlet cooling water of Phu My Fertilizer Plant
2. **Date of Monitoring:** 07/09/2023 (10:10)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.18
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	16
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.2
4	Total Phosphorus (T-P)	mg/l	TCVN 6202:2008	0.068
5	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
6	Lead (Pb)	mg/l	ASTM-D3559:D-15	ND (<0.0100)
7	Arsenic (As)	mg/l	ASTM-D2972:C-15	ND (<0.0100)
8	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
9	Total Iron (T-Fe)	mg/l	TCVN 6177:1996	0.36
10	Mineral Oil and Grease	mg/l	SMEWW 5520B&F: 2023	ND (<0.3)
11	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
12	Temperature	°C	SMEWW 2550B:2023	31.4
13	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	4.7
14	pH	-	TCVN 6492:2011	6.9
15	Cyanide (CN ⁻)	mg/l	TCVN 6181:1996	ND (<0.008)
16	Residual Chlorine	mg/l	Hach Method 8021	0.01
17	Color	mg/l Pt	TCVN 6185:2015	ND (<5)
18	Total Nitrogen (T-N)	mg/l	TCVN 6638:2000	ND (<10.0)
19	Sulfide (S ₂ ⁻)	mg/l	SMEWW 4500 S ₂ -D:2023	ND (<0.12)
20	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)
21	Trivalent Chromium (Cr ₃ ⁺)	mg/l	Ref: TCVN 6658:2000 / SMEWW 3120B	ND (<0.010)
22	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
23	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
24	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
25	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
26	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
27	Total Coliform	MPN/100ml	TCVN 6187-2:2020	Negative (<3)
28	Barium (Ba)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.030)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
29	Tin (Sn)	mg/l	EPA Method 200.7	ND (<0.03)
30	Total Organic Carbon (TOC)	mg/l	SMEWW 5310C:2017	22.2
31	Phenol	mg/l	SMEWW 5530B&C:2017	0.0060

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1. **Sampling Location:** Inlet cooling water of Phu My Fertilizer Plant
2. **Date of Monitoring:** 13/10/2023 (10:30)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	2.23
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	22
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.1
4	Total Phosphorus (T-P)	mg/l	TCVN 6202:2008	0.044
5	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
6	Lead (Pb)	mg/l	ASTM-D3559:D-15	ND (<0.0100)
7	Arsenic (As)	mg/l	ASTM-D2972:C-15	ND (<0.0100)
8	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
9	Total Iron (T-Fe)	mg/l	SMEWW 3125B:2023	0.488
10	Mineral Oil and Grease	mg/l	SMEWW 5520B&F: 2023	ND (<0.3)
11	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
12	Temperature	°C	SMEWW 2550B:2023	31.3
13	Dissolved Oxygen (DO)	mg/l	TCVN 7325:2016	6.5
14	pH	-	TCVN 6492:2011	6.5
15	Cyanide (CN ⁻)	mg/l	TCVN 6181:1996	ND (<0.008)
16	Residual Chlorine	mg/l	Hach Method 8021	ND (<0.01)
17	Color	mg/l Pt	TCVN 6185:2015	ND (<5)
18	Total Nitrogen (T-N)	mg/l	TCVN 6638:2000	ND (<10.0)
19	Sulfide (S ₂ ⁻)	mg/l	SMEWW 4500 S ₂ -D:2023	ND (<0.12)
20	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)
21	Trivalent Chromium (Cr ₃ ⁺)	mg/l	Ref: TCVN 6658:2000 / SMEWW 3120B	ND (<0.050)
22	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
23	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	0.090
24	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
25	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
26	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
27	Total Coliform	MPN/100ml	TCVN 6187-2:2020	23
28	Barium (Ba)	mg/l	US EPA 3015A & EPA 200.8	ND (<0.030)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
29	Tin (Sn)	mg/l	SMEWW 3113B:2017	0.029
30	Total Organic Carbon (TOC)	mg/l	SMEWW 5310C:2017	5.8
31	Phenol	mg/l	SMEWW 5530B&C:2017	ND (<0.002)

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1. **Sampling Location:** Inlet cooling water of Phu My Fertilizer Plant
2. **Date of Monitoring:** 29/11/2023 (10:15)
3. **Customer / Client:** PetroVietnam Fertilizer and Chemicals Corporation - JSC - Phu My Fertilizer Plant

4. Analytical / Measurement Results:

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
1	Ammonium (NH ₄ ⁺ as N)	mg/l	TCVN 6179-1:1996	0.542
2	Total Suspended Solids (TSS)	mg/l	TCVN 6625:2000	74
3	Fluoride (F ⁻)	mg/l	SMEWW 4500-F-B&D:2023	1.9
4	Total Phosphorus (T-P)	mg/l	TCVN 6202:2008	0.24
5	Chemical Oxygen Demand (COD)	mg/l	SMEWW 5220.C:2023	ND (<5)
6	Lead (Pb)	mg/l	ASTM-D3559:D-15	ND (<0.0100)
7	Arsenic (As)	mg/l	ASTM-D2972:C-15	ND (<0.0100)
8	Mercury (Hg)	mg/l	TCVN 7877:2008	ND (<0.0010)
9	Total Iron (T-Fe)	mg/l	US EPA 3015A & SMEWW 3125B: 2023	1.27
10	Mineral Oil and Grease	mg/l	SMEWW 5520B&F: 2023	ND (<0.3)
11	Biochemical Oxygen Demand (BOD ₅)	mg/l	TCVN 6001-1:2021	ND (<3.0)
12	Temperature	°C	SMEWW 2550B:2023	31.3
13	Dissolved Oxygen (DO)	mg/l	TCVN 12026:2018	7.4
14	pH	-	TCVN 6492:2011	6.5
15	Cyanide (CN ⁻)	mg/l	TCVN 6181:1996	ND (<0.008)
16	Residual Chlorine	mg/l	Hach Method 8021	ND (<0.01)
17	Color	mg/l Pt	TCVN 6185:2015	ND (<5)
18	Total Nitrogen (T-N)	mg/l	TCVN 6638:2000	ND (<10.0)
19	Sulfide (S ₂ ⁻)	mg/l	SMEWW 4500 S ₂ -D:2023	ND (<0.12)
20	Hexavalent Chromium (Cr ₆ ⁺)	mg/l	TCVN 6658:2000	ND (<0.010)
21	Trivalent Chromium (Cr ₃ ⁺)	mg/l	Ref: TCVN 6658:2000 / SMEWW 3120B	ND (<0.050)
22	Zinc (Zn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
23	Manganese (Mn)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	0.115
24	Cadmium (Cd)	mg/l	ASTM-D3557:D-17	ND (<0.0023)
25	Nickel (Ni)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
26	Copper (Cu)	mg/l	US EPA 3015A & SMEWW 3120 B: 2023	ND (<0.050)
27	Total Coliform	MPN/100ml	TCVN 6187-2:2020	23
28	Barium (Ba)	mg/l	US EPA 3015A & EPA 200.8	ND (<0.030)

No.	Parameter / Analysis Norm	Unit	Method / Equipment	Result
29	Tin (Sn)	mg/l	SMEWW 3113B:2017	0.031
30	Total Organic Carbon (TOC)	mg/l	SMEWW 5310C:2017	2.8
31	Phenol	mg/l	SMEWW 5530B&C:2017	ND (<0.002)

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