

山东朗格环保工程有限公司

Shandong Lange Environmental Protection Engineering Co., Ltd

1993 5
18

2003 ISO9001

500

,
[2020]688

RTO

40000 1
6 2
t

2022
7

1 6 2 t
2021

282

2

RTO

1 38m

3

4

2022 7

- HJ2.1-2016

4

2022 7 2022 9

(2019)

1315080098

1

1

2

2

1

2

3

4

GB12348-2008 3

4a

GB3096-2008 2

2022 9 30

1

1.1

1.1.1

1 2015 1 1

2 2016 9 1 2018 12 29

3 2018 10 26

4 2017 6 27 2018 1 1

5 2022 6 5

6 2020 4 29

7 2019 1 1

8 2011 3 1

9 2012 7 1

10 2018 10 26

11 2018 10 26

12 2020 1 1

13 [2013]37 2013 9 10

14 645 2013 12 7

15 31 2015 1 1

16 [2015]4 < > 2015 1 8

17 [2015]17 2015 4 2

18 34 2015 6 5

19 [2016]45

2016 4 15

20 [2016]31

2016 5 28

21 [2016]150

2016 10 26

22 [2016]81

2016 11 10

23 42 2016 12 31

24

2017 2 7

25 682 2017 10 1

26 [2017]84

2017 11 14

27 [2018]11

2018 1 25

28 [2018]266

2019 3 1

34 [2019]25 2019 3 28

35 [2019]56 < > 2019 7 9

36 2019 28 2019 7 23

37 [2019]719 2019 9 2

38 [2019]92 2019 10 15

39 29 2019 2019 10 30

40 [2020]463 < 2021 2023 >< 2021 > 2020 9 1

41 [2020]23 2020 9 8

42 16 2021 1 1

43 [2020]688 < > 2020 12 13

44 736 2021 1 24

45 [2021]969 2021 7 1

46 [2021]65 2021 8 4

47 [2021]635 2021 8 16

48 [2021]20 <

> 2021 9 1

49 [2021]104 <2021-2022

> 2021 10 28

50 [2021]1524 <

> 2021 10 29

51 [2021]495 < 2021 >

2021 11 2

52 2021

11 2

53 [2021]108

2021 11 19

54 748 2021 12 1

55 23

2021 11 30

56 [2021]26

2021 12 21

57 [2021]120

2021 12 29

58 2021 82 <

> 2021 12 30

59 [2022]17 2022

3 3

60 [2022]29

2022 3

28

61 [2022]26 <

> 2022 4 1

1.1.2 ⌒

1 [2015]249

2015 12 10

2 [2015]259

2015 12 18

3 [2015]31

2015 12 31

4 [2017]176 <

2016-2020 2016 9 28

5 [2016]141

2016 9 30

6 2016 11 1

7 [2016]37

2016 12 31

8 2017 5 1

9 [2017]561

2017 9 19

10 67

2018 **1** 23

11 47 <

> 2018 1 23

12 105

2018 1 23

13 < > 2018 1

23

14 107

2018 1 23

15 227 2018

1 24

16 248 2012

1

18 [2018]90

2018 4 24

19 [2018]166

2018-2020 2018 8 2

20 [2018]190 <

> 2018 8 6

21 [2018]5 <

> 2018 11 8

22 99 2018 11

30 2019 1

1

23 [2019]29

2019 2 8

24 [2019]58

2019 3 24

25 [2019]112

2019 5 8

26 [2019]113

2019 58 28

27 [2019]126

2019 8 2

28 [2019]132

2019 9 2

29 [2019]134

2019 10 16

32 83

2020 1 1

33 [2020]5

2020 1 16

34 [2020]6

2020 4 7

35 [2020]50

2020 4 20

36 [2020]83

2020 6 19

37 [2020]29

2020 6 22

38 [2020]48

2020 11 6

39 2020 11 27

40

2020 11 27

41 [2021]58

2021 3 4

42 [2021]81

2021 4 4

43 [2021]5

2035 2021 4 6

44 [2021]92 <

> 2021 4 9

45 [2021]143

2021 8 11

46 [2021]30

2021-2025

2021-2025 2021-2025

2021 8 22

47 [2021]12

2021 8 22

48 [2021]3 <

2021-2023 > 2021 10 26

49 [2021]8 <

> 2021 11 13

50 [2021]249

2021 11 19

51 [2021]9 2021-2022

2021 11 25

52 [2022]1

2022 4 3

53 [2022] 12

2022 7 27

54 [2022]196

2022 10 8

55 2023 1 1

56 11

2018.1.2

57 16

2018.8.30

58 [2019]6 <

>

59 [2019]7 <

>

60 [2019]19 <

>

61 [2019]39 <

5 HJ2.4-2009

6 HJ964-2018

7 HJ169-2018

8 HJ19-2011

9 HJ2000-2010

10 HJ2015-2012

11 HJ2035-2013

12 HJ2034-2013

13 HJ589-2010 Å ×

14 HJ2042-2014

15 HJ 819-2017

16 HJ 1139-2020

17 HJ942-2018

18 HJ 1102-2020

19

20 2021

21 2015.11

22 2016.9.26

23

/ [2010]12 6

7 45000t/a 6

/ 7

8

1.2.2

1.2.3

1.3

1.3.1

1.3.1.1

1.3-1

1.3-1

		SS COD BOD

1.3.1.2

1.3-2

1.3-2

	VOCs SO_2 NOx	COD_{Cr} BOD_5	L_{Aeq}	

1.3.2

1.3-3

1.3-3

	SO_2 NO_2 PM_{10} $PM_{2.5}$ CO O_3 TSP	--
	pH SS COD_{Cr} BOD_5	--
	pH K^++Na^+ Ca^{2+} Mg^{2+} CO_3^{2-} HCO_3^-	--
	Leq A	Leq A
	pH 1,1- 1,2- 1,1- -1,2- -1,2- 1,2- 1,1,1,2- 1,1,2,2- 1,1,1- 1,1,2- 1,2,3- 1,2- 1,4- + 2- [a] [a] [b] [k] [a h] [1,2,3-cd]	

1.4

1.4.1

1.4-1~ 1.4-7

1.4-1

	GB3095-2012	
	HJ2.2-2018	D
	GB3838-2002	
	GB5084-2021	1
	GB/T14848-2017	
	GB3096-2008	2 3 4a
	GB36600-2018	1 2
	GB15618-2018	1

1.4-2 mg/m^3

SO_2	0.50	0.15	0.06	GB3095-2012
NO_2	0.20	0.08	0.04	
PM_{10}		0.15	0.07	
TSP		0.30	0.20	
$PM_{2.5}$		0.075	0.035	
CO	10	4		
O_3	0.2	0.16 8		
NO_X	0.25	0.10	0.05	
	0.05			HJ2.2-2018 D
	0.2			
	2.0			p244 mg/m^3

1.4-3 mg/L

	pH		SS	COD_{Cr}	BOD_5		
	6 9	3mg/L	100mg/L	30mg/L	6mg/L	1.5mg/L	10mg/L
							P
	1.5mg/L	1.0mg/L	2.0mg/L	0.02mg/L	0.1mg/L	0.5mg/L	0.3mg/L
	0.005mg/L	0.05mg/L	0.05mg/L	10mg/L	250mg/L	0.9mg/L	0.001mg/L
	0.2mg/L	250mg/L	0.01mg/L	0.5mg/L	20000 /L		

1,1-	9
1,2-	5
1,1-	66
-1,2-	596
-1,2-	54
	616
1,2-	1
1,1,1,2-	2.6
1,1,2,2-	1.6
	11
1,1,1-	840
1,1,2-	2.8
	2.8
1,2,3-	0.5

1.4-8

	6 DB37/801.6-2018	1 VOCs 2 3
	GB31572-2015	5
	DB37/2376-2019	1
	GB16297-1996	2
	GB14554-93	1 2

			5			6 DB37/801.6-2018 2 GB31572-2015 4
			15			

1.4-10

		mg/m^3	
1		1.0	GB16297-1996 2
2		0.2	
3		0.08	
4	VOCs	2.0	6 DB37/801.6-2018 3
5		1.5	GB14554-1993 1
6	NMHC	1h 6	GB37822-2019
		20	

1.4-11 mg/L

		GB8978-1996 4	
1	pH	6~9	6.5~9.5
2	CODcr	500	300
3	BOD_5	300	150
4			20
5	TN		45
6			1600
7		5	

1.4-12

	dB A	dB A	
	70	55	GB12523-2011
	65	55	GB12348-2008 3
	70	55	GB12348-2008 4a

1.4-13

	GB18599-2020
	GB18597-2001 2013

1.5

1.5-1

1.5-1

		1% Pmax=4.43% 10%	
		35.54m^3/d	B
		3	
		3dB(A)	

1.6 想

1.6-1

1.6-2 **1.6-1** **1.6-2**

1.6-1

	5km
	500m 2000m
	1000m 1000m 2000m 6km^2
	200m

2

2.1

1993 5 18

2003 ISO9001

500 2016 360 19 146 2016 500 372 500 60 100 38 50 1

2.1-1

2.1-1

2.2

2.2.1

2.1-1

45000t/a 6 /

2.1-1

91371526168212752800 5U

2.2.2

2.2-1

2.2-1

45000t/a 6 /	6 6	45000t 20500t	2

2.2.3

2.2-2

2.2-2

	45000t/a 6 /	3 2
		1 1 1 1
		1
		1
		1
		1
		1 1
		2
		1
		1
		1
	1	1 1
	2	1 1
	3	1
	4	1
		1
		2 1 1

8 1

		2	1000m^3
		3	400kg
		2	2.0m^3
		2	2.0m^3
		45000t/a 6 /	1 40m DA012 DA017 DA022 25m DA023 DA026 15m DA027 DA028 30m DA013 DA019 35m DA014 35m DA015 35m DA020 35m DA016 DA021
			1 15m DA31
			UV 1 15m DA007 VOCs / + UV 1 26m DA005 1 15m DA008
			UV 1 15m DA007
			1 44m DA025

			1 30m DA024 20m DA018 25m DA029
		45000t/a 6 /	
			/ /
			759m^3

2.2.4

2

2 1

4 3

2.2-1

2.2.5

2.2.5.1

2.2-3

2.2-3

1	45000t/a 6 /		
3			
4			
5			
6			

2.2-2

2.2.6.2

2.2.6.2.1

2.2-4~2.2-6

2.2-4

2.2-5

2.2.6.4

1

/ /

60~110

2

150 160

165 175 180 30

3

/ /

4

5

2.2-8

3

4

$8m^3$

1

$8m^3$ SS

5

6 700

7

8

2.2-9

2.2.6.6

-

45000t/a 6 /

45000t/a 6 /

45000t/a 6 /

2.2.6.1.1 2.2-10

2.2.7 “ ”

2.2.7.1

2.2.7.1.1

45000t/a 6 /

2.2-5

2.2-5

G1-1			1 40m DA012 DA017 DA022
G1-2			
G1-3			
G1-4			
G1-6			
G1-5			
G1-7			25m DA023 DA026
G1-8			
G1-9			15m DA027 DA028
G1-12			30m DA013 DA019
G1-10			
G1-11			

2022 C220189 2022 1 19

2021 C210848-20

2021 12 11

2022 C220189-02 2022 3 10 -12

2022 C220189-03 2022 4 3

2.2-6

2.2-6

GB16297-1996 2

DB37/2376-2019

1 GB14554-93

2 VOCs

6 DB37/801.6-2018

1

6 DB37/801.6-2018 2

GB31572-2015 5

6

DB37/801.6-2018 2

132917m^3/h 111650.28 m^3/a

1.883t/a VOCs 7.661t/a

1.955t/a 0.213t/a 0.497t/a

1 15m DA031

2021 C210848-20

2021 12 13

2.2-7

2.2-7

				m^3/h	mg/m^3	kg/h	kg/h	m	mg/m^3	kg/h	
DA031		2021.12.13	1	8822	5.1	0.045	0.0402	15/0.35	10	3.5	
			2	8640	5.6	0.0484					
			3	6469	4.2	0.0272					

2.2-7

GB16297-1996 2

DB37/2376-2019

1

7977m^3/h 5743.44 m^3/a

0.29t/a

/ G4-1 G4-2

G4-3 G4-4 2.2-8

2.2-8

G4-2		UV 1 15m DA007
G4-1 G4-3	/	VOCs / + UV 1 26m DA005
G4-4		1 15m DA008

2020 12 22

2.2-9

2.2-9

				m^3/h	mg/m^3	kg/h	kg/h	m	mg/m^3	kg/h	
DA007	VOCs	2020.12.22	1	6467.255	8.13	0.0526	0.0490	15	60	3.0	
			2	6467.255	7.50	0.0485					
			3	6467.255	7.12	0.0460					
DA005	VOCs	2020.12.22	1	5125.481	1.79	0.00917	0.00679	26	50	2.0	
			2	5125.734	2.64	0.00135					
			3	5056.011	1.95	0.00986					
			1	5125.481					0.5	0.2	
			2	5125.734							
			3	5056.011							
			1	5125.481	0.023	0.000118	0.000111		5.0	0.6	
			2	5125.734	0.020	0.000103					
			3	5056.011							

			1	5125.481					15	0.8	
			2	5125.734							
			3	5056.011							
			1	5125.481	4.6	0.0236	0.0254		10		
			2	5125.734	5.3	0.0272					
			3	5056.011	5.0	0.0253					
DA008		2020.12.22	1	4264.790	4.0	0.0171	0.0169	15	10	3.5	
			2	3814.772	4.3	0.0164					
			3	4540.407	3.8	0.0173					

DA007 VOCs

2.2-11

2.2-11

G6-1			1 44m DA025
G6-3			
G6-4			
G6-6			
G6-5			1 30m DA024
G6-2			
G6-7			
G6-8			
G6-9			
G6-8			20m DA018
G6-10			25m DA029

2022 C220189-02 2022

3 18

2.2-12

GB16297-1996

2

DB37/2376-2019 1

VOCs

6 DB37/801.6-2018 1

38112m^3/h 27440.64 m^3/a VOCs

2.411t/a 1.397t/a

2.2-13

2.2-13

	t/a	VOCs t/a	t/a	t/a	t/a	kg/a
45000t/a 6 /	1.883	7.661	1.955	0.124	0.306	
	0.29					
	0.102	0.134				0.27
	1.397	2.411				
	3.672	10.206	1.955	0.213	0.497	0.27

2.2.7.1.2

2.2-14

2.2-14

1	45000t/a 6 /	
2		
3		
4		
5		

2.2-16

	( )		m/s)	%	(hPa)	/
09:00	20.6					

2021.9.30

2.2-15

HCl

GB16297-1996 2

GB14554-93 1

VOCs 4

DB37/2801.4-2017 3 5

DB37/2801.5-2018 3

6 DB37/801.6-2018 3

2.2.7.1.3

45000t/a 6 /

45000t/a 6 /

100m

100m 11

100m

100m

[2018]96

100m

[2018]207

100m

[2019]7

100m 100m

50m

2.2.7.2

2.2.7.2.1

2.2-17

2.2-17

1	45000t/a 6 /		
2			
3			
4			
5			

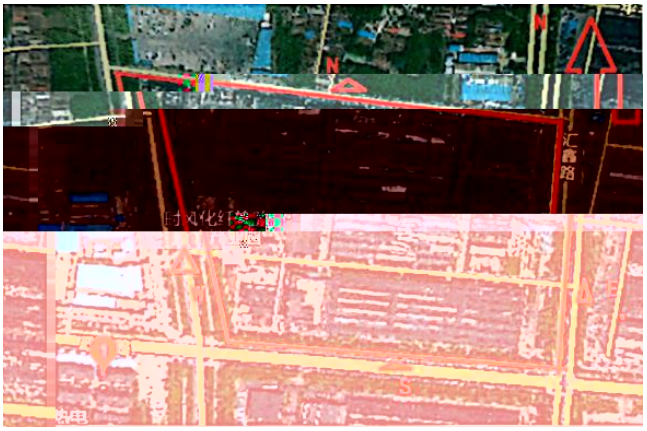
2.2.7.2.2

1000m^3/d

+ + + 2.2-16

2.2-19

	pH	BOD_5 mg/L	mg/L	mg/L	mg/L
2022-07-23	7.3	2.5	24	2.34	未检出
	7.3	2.6	26	2.29	未检出
	7.3	2.4	24	2.25	未检出
GB8978-1996 4	6-9	300	400		20
	6.5-9.5	150		20	



2.2-17

52.2~57.3dB(A)

47.9~49.1dB(A)

GB12348-2008 3

GB12348-2008 4a

2.2.7.4

2.2-20~2.2-25

45000t/a 6 /

2.2-20

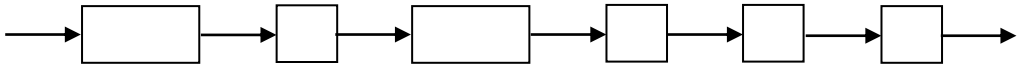
2.2-20

				t/a	
			--	0.35	
			--	8	
			--	40	
			--	20	
			--	128.53	
			--	185	
			--	265	
			HW08 900-249-08	0.12	
			--	70	

			--	82	
			--	12	
			--	150	
	--		HW49 900-041-49	12	
			HW08 900-249-08	26t/4a	
			--	0.4	

2000

10 20



2.2-21

2.2-21

				t/a	
			--	10	
			HW08 900-249-08	1.0	
			HW08 900-249-08		
			HW09 900-006-09	1.2	
	--		HW09 900-006-09	2.0	
			--	0.03	
			--	60	

2.2-22

2.2-22

				t/a	
			--	2.0	
			--	6.0	
			HW12 900-252-12	6.2	
	--		HW49 900-041-49	0.4	
			HW49 900-041-49	0.1	
	UV		HW29 900-023-29	0.02	
			--	0.07	
	--		--	0.5	
			--	6.0	

2.2-23

2.2-23

				t/a	
			--	18	
			--	0.5	
			--	4	
			HW12 900-253-12	0.02	
			HW49 900-041-49	2	
	UV		HW29 900-023-29	0.01	
			--	4.8	

2.2-24

2.2-24

		t/a		
		0.27		
		6		
		31		
		15		
		69.943		
		142		

		206		
		0.16		
		7		
		32		
FDY	--	2		
		5t/4a		
		10t/4a		
		0.45		

2.2-21~2.2-24

2.3

2.2-25

2.2-25

		m^3/a	148618.2
		t/a	3.672
		VOCs t/a	10.206
		t/a	1.955
		t/a	0.213
		t/a	0.497
		kg/a	0.27
	m ³/a		218901.86
	COD_{Cr} t/a		3.481
	t/a		0.143
	t/a		0.039
	t/a		1.539

[redacted]

2019 134

1

2019 134 VOCS

0.5 / 10000 /

DA023

DA026 DA027

2022 11

2.5

4.5

45000t/a

4.5

45000t/a

2.5.1 4.5

4.5

2.5.1.1

		t/a	1.248	
		VOCs t/a	0.603	
		t/a	0.433	
		t/a	0.05	
		t/a	0.025	
	m^3/a		10878	
	COD_{Cr} t/a		0.21	
	t/a		0.003	
	t/a		0	

2.5-8

		Nm^3/a	113400	
		t/a	4.494	
		VOCs t/a	1.367	
		SO_2 t/a	3.168	
		NOx t/a	12.699	
		t/a	1.1694	
		t/a	0.0273	
		t/a	0.01362	
		t/a	1.442	
		VOCs t/a	1.435	
		t/a	1.299	
		t/a	0.15	
		t/a	0.075	
	m^3/a		26477.5	
	COD_{Cr} t/a		0.42	
	t/a		0.017	
	t/a		0	

2.5.2 45000t/a

45000t/a

2.5-11

		mg/m^3	kg/h	t/a	/ m
P2-1		3.2	0.162	1.36	P2-1 38/0.8
	SO_2	3.5	0.176	1.475	
	NO_x	14.1	0.704	5.916	
	VOCs	0.2	0.012	0.102	
		1.3	0.063	0.533	
		0.03	0.0015	0.0124	
		0.01	0.0007	0.00612	

2.5-11

GB16297-1996 2 35.8kg/h

DB37/2376-2019 1 10mg/m^3 50mg/m^3 100mg/m^3 < >

[2019]39 50mg/m^3

GB31572-2015 5 15mg/m^3 5mg/m^3

6 2 15mg/m^3 5mg/m^3 VOCs

6 DB37/801.6-2018 1 VOCs60mg/m^3 3.0kg/h

GB14554-93 2 31.8kg/h

0.132t/a VOCs 0.569t/a 0.592t/a 0.069t/a 0.034t/a

2.5.2.5.2

RTO

È k"^ RTO

630m^3/a

CODcr

18.5mg/L 1.69mg/L

CODcr mg 15.9mg/L 0.653mg/L

7.03mg/L CODcr 0.012t/a

0.0004t/a 0.004t/a

2.5.2.5.3

2.5-12

2.5-12

2.5-13

		Nm^3/a	42000
		t/a	1.36
		VOCs t/a	0.102

		SO_2 t/a	2.531	
		NOx t/a	10.149	
		t/a	0.9228	
		t/a	0.0215	
		t/a	0.01066	
		t/a	1.38	
		VOCs t/a	1.172	
		t/a	1.025	
		t/a	0.119	
		t/a	0.059	
	m^3/a		10878	
	COD_{Cr} t/a		0.21	
	t/a		0.003	
	t/a		0	

2.5-15

		Nm^3/a	155400	
		t/a	5.854	
		VOCs t/a	1.469	
		SO_2 t/a	4.643	
		NOx t/a	18.615	
		t/a	1.7024	
		t/a	0.0397	
		t/a	0.01974	
		t/a	1.574	
		VOCs t/a	2.004	
		t/a	1.891	
		t/a	0.219	
		t/a	0.109	
	m^3/a		26477.5	
	COD_{Cr} t/a		0.42	
	t/a		0.017	

	t/a	0	

3

3.1

2019 1 28 [2019]7

3.5 6

2019 6 23

6 2 2022 6

5

130t/h 1 5 1 2.4

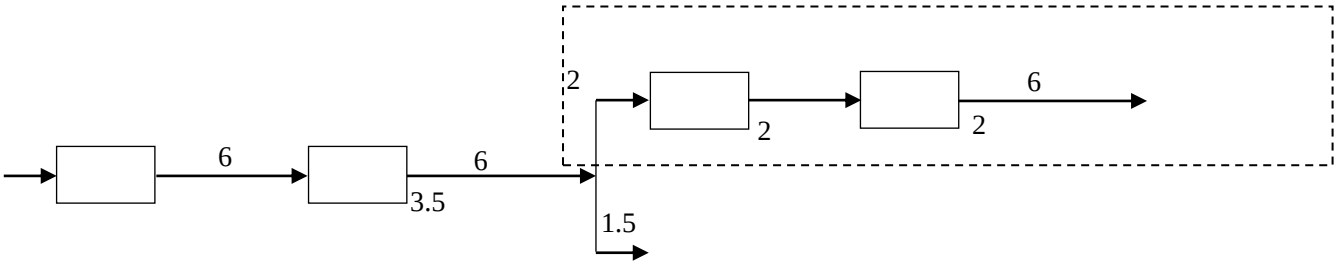
3.1-1

3.1-1

	1 1 15m 1 25m 35m 1 15m	RTO 1 38m

35000t/a 6 /

3.2-1



3.2-1

3.2-2 6 GBT9102-2016

				/(dtex/											
				2100/2		1870/2		1400/3		1400/2			930/2		
				V_1	V_2	V_1	V_2	V_1	V_2	V_1	V_2	V_3	V_1	V_2	V_3
1			/10cm	88	74	88	74	88	74	100	74	52	126	94	60
2				92	78	92	78	92	78	105	78	55	130	98	64
3				8	10	8	10	8	10	8	10	16	10	12	14
4			tex	28~30											
5			m	L ±2%											
6			cm	145 ±3											
7				2~10 28tex-30tex											
			/10cm	42~45											
			cm	10											
L 2100dtex/2 1200m 1400dtex/3 930dtex/2-V_1 V_2 1100m 1870dtex/2 1280m 1400dtex/2-V_1 V_2 1310m 1400dtex/2-V_3 1160m 930dtex/2-V_3 2200m 720m															

3.2.3

3.2-3

3.2-3

		2 1 20352m^2	
		1 6 1800m^2	

1

2

3

SSW

3.2.7

3.2-8

3.2-8

1		152/168	33	
2		MNB190CM	14	
3		--	18	
4		--	1	
5		--	26	
6		--	10	
7		40Nm^3/min	1	
8		MAXON	16	
9	RTO	25000m^3/h	1	

3.2.8

3.2.8.1

1

S_1

2

3.2.9

3.2.9.1

1

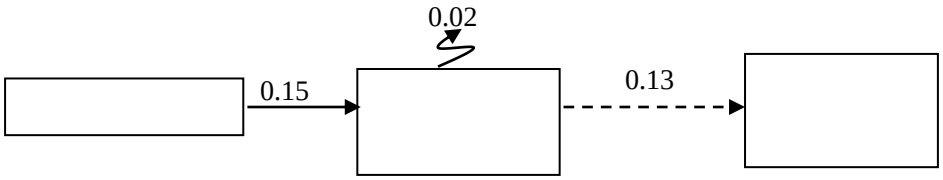
$4m^3/d$ $1400m^3/a$

2

$9.6m^3/d$ $3360m^3/a$

3.3.9.2

3.2-6 3.2-7



3.2-7 t/h

3.2.9.3

750 kWh

3.2.9.4

798.4m^3/h 670.656 m^3/a

RTO 29.73m^3/h 24.973 m^3/a

3.2.9.5

3.2-11

3.2-11

			m	m	m^3		t
	2		1.5	2.2	3.9	0.8	2.84
	2		1.5	2.2	3.9	0.8	2.54

3.2.9.6

EDI EDI Electrodeionization

G_7 G_8

G_6 RTO

45000t/a 6 /

RTO

3.3.1.1

3.3-1 3.3-1

3.3-1

G_1			RTO 4.5 38m
G_2	VOCs		
G_4	VOCs		
G_5	VOCs		
G_3			
	VOCs		
G_6			
RTO			
G_7	VOCs		
G_8	VOCs		

110-140

VOCs

VOCs

RTO

RTO 38m

1

HJ991-2018 C

$1m^3$ C.3

V_0 $0.0476[0.5\ (CO)\ 0.5\ (H_2)\ 1.5\ (H_2S)\ (m\ \frac{n}{4})\ (C_mH_n)\ (O_2)]$ C.3

V_0 m^3/m^3

(CO) %

(H_2) %

(H_2S) %

(C_mH_n) % m n

(O_2) %

3.3-2

	CH_4	C_2H_6	C_3H_8	C_4H_{10}	C_5H_{12}	C_{5+}	H_2	H_2S	CO_2	N_2
	96	2	0.5	0.2	0.05	0.05			0.6	1.5

C.3 $V_0=9.732m^3/m^3$

1 1kg

C.4

V_{Ro_2} V_{co_2} V_{SO_2} $1.866\ \frac{C_{ar}\ 0.375S_{ar}}{100}$ C.4

V_{RO_2} $0.01[\ (CO_2)\ (CO)\ (H_2S)\ m\ (C_mH_n)]$

V_{N_2} $0.79V_0\ \frac{(N_2)}{100}$

10mg/m^3

10mg/m^3

1.075t/a

NOx 50mg/m^3

50mg/m^3

5.378t/a

3.3-3

3.3-3

	Nm³/a			SO_2		NO_x	
		t/a	mg/Nm^3	t/a	mg/Nm^3	t/a	mg/Nm^3
	10755	1.075	10	1.341	12.5	5.378	50
DB37/2376-2019 1			10		50		100
[2019]39							50

3.3-3

DB37/2376-2019 1 10mg/m^3 50mg/m^3

100mg/m^3 < >

[2019]39 50mg/m^3

1 38m P1

2 RTO

RTO

400.5 m^3/a

RTO

DB37/2376-2019 1

10mg/m^3 50mg/m^3 100mg/m^3

< >

[2019]39 50mg/m^3

RTO 1 38m P1-3

3

RTO 38m

VOCs

HJ 1102-2020 D.1 6

56.16g/ + 38.19g/

VOCs 32%

85-89% 85%

RTO RTO

98% 80%

2.05

2

RTO

25000Nm^3/h 98%

3.3-7

3.3-7 P1

		(t/a)	kg/h	(mg/m^3)	(m^3/h)		(%)	(t/a)	(kg/h)	(mg/m^3)
		2.274	0.271	10.8						

P1

25000

3.3-7 3.3-9 P1

GB16297-1996 2 35.8kg/h

DB37/2376-2019 1 10mg/m^3 50mg/m^3

100mg/m^3 < >

[2019]39 50mg/m^3

GB31572-2015

5 15mg/m^3 5mg/m^3

6 2 15mg/m^3

5mg/m^3 VOCs

6 DB37/801.6-2018 1

VOCs60mg/m^3 3.0kg/h

GB14554-93 2 31.8kg/h

3.3-10

3.3.1.2

90% 10%

0.129t/a VOCs

0.555t/a 0.578t/a 0.067t/a 0.033t/a

90%

3.3-12

		m^3/a	mg/L	t/a
1	CODcr	12439	752	9.35
2	BOD_5		379	4.71
3			13	0.16
4			21	0.26
5			1220	15.18
6			2.1	0.03

3.3-12 12439m^3/a COD_{Cr}

2009 5 8

16km

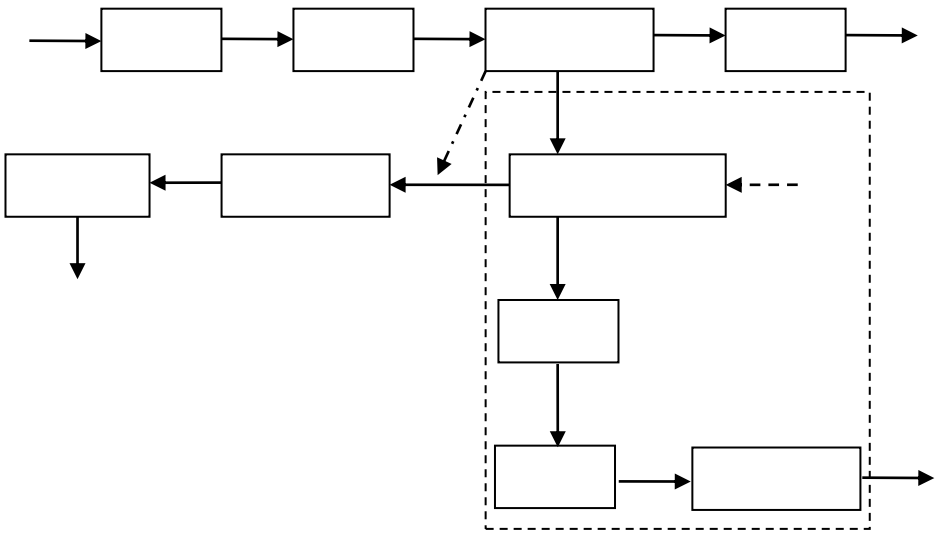
0.9mm

BIOLAK

Bl0lAK

BlOLAK

3.3-3



3.3-3

pH 6~9

COD_{Cr} BOD_5

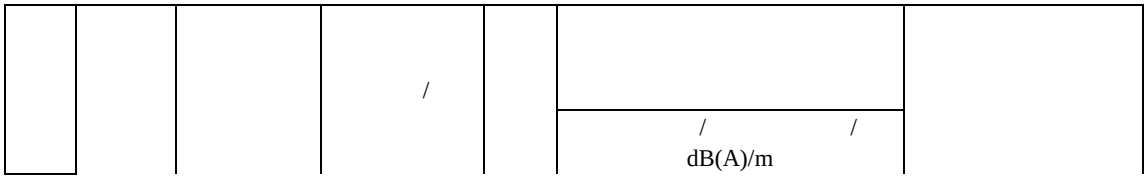
(GB18918-2002) A

	74280	7.61	22.9	1.26	0.299	11.4
	33432	6.69	6.52	0.208	0.13	

80 95dB A

3.3-15

3.3-15



1 1 85/1

3.3.4

2021

HW49 900-041-49

2

3.3-16

3.3-16

			t/a			
S_1			209		282-999-99	
S_2			627.6		282-999-99	
			0.15		282-999-99	
			10.5			
		--	2.3		HW49 (900-041-49)	
	RTO		16t/5a		282-999-99	
			965.55 2.3			

3.3.5

3.3-17

3.3-17

			Nm^3/a	21000	0	21000	P1
			t/a	2.274	0.984	1.29	
			VOCs t/a	4.998	4.898	0.10	
			SO_2 t/a	1.391	0	1.391	
			NOx t/a	5.578	0	5.578	
			t/a	5.2	4.68	0.52	
			t/a	0.605	0.5929	0.0121	
			t/a	0.294	0.28812	0.00588	
			t/a	0.129	0	0.129	
			VOCs t/a	0.555	0	0.555	
			t/a	0.578	0	0.578	
			t/a	0.067	0	0.067	
			t/a	0.033	0	0.033	
	m^3/a			12439	0	12439	
	COD_{Cr} t/a			9.35	9.15	0.20	
	t/a			0.16	0.152	0.008	
	t/a			209	209	0	
	t/a			627.6	627.6	0	
	t/a			0.15	0.15	0	
	RTO			16t/5a	24t/5a		
	t/a			10.5	10.5	0	
	t/a			2.3	2.3	0	
	t/a			965.55	965.55	0	

3.3.7

3.3.7.1

1 1000m^3

3.3.7.2

0

3.3-18

3.3-18

		mg/m^3	kg/h	mg/m^3	kg/h	
P1		10.8	0.271	10	35.8	
	SO_2	6.6	0.166	50		
	NO_x	26.6	0.664	50		
	VOCs	23.8	0.595	60	3.0	
		24.8	0.619		31.8	
		2.9	0.072	5		
		1.4	0.035	15		

DB37/2376-2019 1

3.3.8

3.3-19

3.3-19

	t/a	218901.86	10878	0	630	12439	241588.9	+12439
	COD t/a	3.481	0.21	0	0.012	0.20	3.879	+0.20
	t/a	0.143	0.003	0	0.0004	0.008	0.1536	+0.008
	t/a	0.039		0			0.039	
	t/a	1.539	0.08	0	0.004	0.09	1.705	+0.02
	m^3/a	148618.2	113400	0	29459	21000	253559.2	+21000
	t/a	3.672	3.894	0	0.178			

3.4.7

3.4.8

3.4-4

3.4-4

1		GB16297-1996 2 DB37/2376-2019 1 GB14554-93 1 2 6 DB37/801.6-2018 1 2 3 GB31572-2015 5 9 GB12348-2008 3 4a GB18599-2020 GB18597-2001
2		3
3		
4		
5		
6		

3.4-4

3.4.9

1

2

3

3m

56.25% 17.65%

10.83% 6.94% 5.11%

3.22%

7

4.2.2

4.2.2.1

V_4^8

V_4^{10} V_4^{11} V_4^8

-

2000-3500m

250m

1 (Q)

240-

1-2 2-3 l-5m

20-30m

2 (Q1 3)

90-206m

60-70m

3-6m l0m

10-20m 50-70m l00-200m

150m

200m 230m

2 (N)

500-800m

300-l000m

3 (E)

4.2.2.2

II

III

270km NEl0^{o}-30

4.2.3

4.2.3.1

-

- -

(50m) (2g/L)

(50-120m)(2-5g/L)

120-140m (2g/L)

4.2.3.2

1

-

2

4.2.3.3

“ ” “ ”

1-6 6 12.48m 6-9

9

15.07m 2.59m

4.2.4

17

4181.2km^2

26km 393.62km^2

26km 393.6km^2 9

100km^2 100km^2

28km 432.3km^2 6 100km^2

100km^2

4.2-2

4.2.5

“ ”

13.1 26.6

41.2 (1958 6 18) -3.0 -20.8

(1981 1 26) 1 -3.1 7

26.8 195 43cm 31cm

3.7m/s 4 4.7m/s

8 2.5m/s

508.8mm 7 8 9

73.2 975.9mm 1961 287.1mm 2002

3.4 1.2mm 121.6mm

56.1mm 150mm 1644.9mm

E601 1892.3mm 1994
1368.1mm 2007 10m 10 24m/s
2.3m/s 1.9m/s 2.3m/s
18% 4% 18% 20 /

4.2.6

GB18306-2015

0.15g VII

7

4.2.7

142 119
76.79% 33.41 23.21%
94.4 65.41% 8.87 6.15%
7.5 5.2% 1.46 1%
22.32 15.5% 11.01 7.71%
18.68 m^3
2.7 m^3 1.56 m^3
60m
16.7 m^3 15.9 m^3 0.8 m^3 1.34
m^3 3.9974 m^3

4.2.8

142 119

83 58%

19.9 14%

40 27%

2 3m

20 15%

4.2.9

58715.8 338500 8%

93

4.3

1 (GB3095 2012)

2 GB3838-2002

GB3838-2002

3 GB/T14848-2017 III

4 3

5

(GB36600-2018)

GB15618-2018

4.4

4.4.1

2018 ~2035 2022

2035 2050

4.4.1.1

1

1

54.6

308

0.6

2

“ ”

“ ”

“ ”

“ ”

“ ”

“ ”

“ ”

“ ”

6.7

6.4

12.1

7.4

6.1

9.8

0.6 308

0.3

4.4.1.2

1064.1 25.5%

30.4 13

5

2.0

4.4.1.3

1

333.4 8.0%

9.5

“ — ”

“ ” “ ”

0.8 “ ”

0.6

0.4

13

15 2-3

2

47.6 1.1% 1.4

3

22.2 0.5%

0.6

4

146.8 3.5%

4.2

5

37.4 0.9% 1.1

6

60 1.4% 1.7

7 5 / 2 /

7

15.6 0.4%

0.4

3.4.1.4

263.2 6.3%

7.5

4.4.1.5

1

1206.1 28.9%

34.5

2013 36 1.0

2

65 1.6% 1.9

1

4.4.1.6

“ +

”

4.4.1.7

“ ”

2018~2035

4.4-1

4.4.2

2014 12

[2014]220

2008

2018

23km^2

316

- 322

“

”

1

2021

4.5-1

4.5-1

	SO_2	NO_2	PM_{10}	$PM_{2.5}$	CO	O_3
					24 95	8 90
	11	33	81	49	1.4mg/m^3	159
	60	40	70	35	4 mg/m^3	160

2021 SO_2 NO_2

CO 24 95 O_3 8 90

GB3095-2012 PM_{10} $PM_{2.5}$

GB3095-2012

$PM_{2.5}$ PM_{10}

2

HJ2.2-2018

4.5-1 2021

PM_{10} $PM_{2.5}$

GB3095-2012

4.5.1.2

1

S

4.5

HJ2.2-2018

4.5-4

			(m/s)	( )	(kPa)		/
2022.01.18-2022.01.19	14:00	S	1.6	7.3	100.34		10/7
	20:00	S	1.4	-3.2	102.27		/
	02:00	S	1.3	-3.7	102.35		/
	08:00	S	2.1	0.2	101.46		10/8
2022.01.19-2022.01.20	14:00	S	1.9	5.7	102.16		10/7
	20:00	S	2.3	-2.8	102.33		/
	02:00	S	1.7	-6.3	102.50		/
	08:00	S	2.0	-6.2	102.63		9/6
2022.01.20-2022.01.21	14:00	S	1.4	1.3	102.21		10/7
	20:00	S	1.2	-2.2	103.24		/
	02:00	S	1.1	-4.6	103.31		/
	08:00	S	1.2	-4.5	103.31		10/9
2022.01.21-2022.01.22	14:00	S	1.8	2.7	102.24		10/7
	20:00	S	1.9	-2.7	102.31		/
	02:00	S	2.1	-5.9	102.49		/
	08:00	S	1.9	-6.3	102.52		9/7
2022.01.23-2022.01.24	14:00	S	1.5	1.8	102.52		10/7
	20:00	S	1.2	0.6	102.53		/
	02:00	S	1.4	-2.9	102.56		/
	08:00	S	1.1	-4.2	102.58		10/8
2022.01.24-2022.01.25	14:00	S	1.9	2.6	102.29		10/7
	20:00	S	1.6	1.5	102.30		/
	02:00	S	1.7	-1.8	102.33		/
	08:00	S	2.0	0.4	102.34		10/8
2022.01.25-2022.01.26	14:00	S	1.3	4.5	102.14		3/1
	20:00	S	1.2	-1.2	102.20		/
	02:00	S	1.2	-4.2	102.50		/
	08:00	S	1.2	-4.0	102.51		3/1

4.5-5 1 mg/m ³

						NH_3							
		14:00	20:00	02:00	08:00	14:00	20:00	02:00	08:00	14:00	20:00	02:00	08:00
1#	2022.1.18-2022.1.19						0.02	0.02	0.04	0.62	1.30	1.12	0.78

	2022.1.19-2022.1.20						0.02	0.02	0.03	1.00	0.96	0.92	0.69
	2022.1.20-2022.1.21						0.02	0.02	0.02	0.76	0.62	0.96	1.04
	2022.1.21-2022.1.22						0.02	0.02	0.03	0.68	0.79	0.76	0.62
	2022.1.23-2022.1.24						0.02	0.02	0.02	0.78	0.63	0.60	0.66
	2022.1.24-2022.1.25						0.02	0.02	0.02	0.56	0.64	0.47	0.71
	2022.1.25-2022.1.26						0.02	0.02	0.02	0.40	0.77	0.62	0.44

4.5-5 2 mg/m ³

			TSP	( )

14:00 20:00 02:00 08:00 14:0

TSP

2

GB3095-2012

(HJ2.2-2018) D 1.4-2

3

$$P_i = \frac{C_i}{C_{0i}}$$

C_i i mg/m^3

C_{0i} i mg/m^3

P_i i

4

4.5-7

4.5-7

			%			%		

1#

PM 2.5

1. VOCs

VOCs

VOCs

VOCs

VOCs

VOCs

VOCs “ ”

VOCs VOCs

LDAR

VOCs

2. NOx

3. PM 2.5 O_3 $PM_{2.5}$ O_3

$PM_{2.5}$ O_3

“ ”

$PM_{2.5}$ O_3

1.

OBD

2.

3.

2025

3000

1.

“ ”

2025

55% 45%

2. 2025

90% 80%

3.

4.

7 / .

5.

2025

6.

7. ODS

4.5-9

1			GB/T 13195-1991	/
2			HJ 506-2009	/
3	pH	pH	HJ 1147-2020	/
4			GB/T 11901-1989	/
5			HJ 828-2017	4mg/L
6		BOD_5	HJ 505-2009	0.5mg/L
7			GB/T 11893-1989	0.01mg/L
8			HJ 535-2009	0.025mg/L
9			HJ 636-2012	0.05mg/L
10			GB/T 7475-1987	0.05mg/L
11				0.05mg/L
12		9.1	GB/T 5750.6-2006	0.5μg/L
13			HJ 694-2014	0.3μg/L
14				0.4μg/L
15				0.4μg/L
16			GB/T 7467-1987	0.004mg/L
17			GB/T 7493-1987	0.003mg/L
18			HJ/T 346-2007	0.08mg/L
19			HJ/T 51-1999	/
20		F^- Cl^- NO_2^- Br^- NO_3^- PO_4^{3-} SO_3^{2-} SO_4^{2-}	HJ 84-2016	0.007mg/L
21				0.018mg/L
22			GB/T 7484-1987	0.05mg/L
23			HJ 484-2009	0.004mg/

				L
24			GB/T 11892-1989	0.5mg/L
25		4-	HJ 503-2009	0.0003mg/L
26			HJ 970-2018	0.01mg/L
27			GB/T 16489-1996	0.005mg/L
28			HJ 601-2011	0.05mg/L
29		11.1 11.2	GB/T 5750.6-2006	2.5
30			HJ 755-2015	20MPN/L

5

4.5-10

4.5-10

	1#						2#					
	2022.1.20		2022.1.21		2022.1.23		2022.1.20		2022.1.21		2022.1.22	
	1.0	1.0	1.1	1.1	2.8	2.9	1.0	1.0	1.3	1.2	3.4	3.4
m	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
m	7	7	7	7	7	7	7	7	7	7	7	7
m^3/h	0.04	0.04			0.08	0.08	0.04	0.04				

mg/L												
μg/L	33.8	34.0	34.4	32.0	35.8	35.4	33.7	32.3	34.7	31.6	35.4	31.3
mg/L	4.11	4.03	4.10	4.15	4.10	4.09	4.23	4.16	4.02	4.06	4.16	4.15
mg/L	0.113	0.117	0.113	0.115	0.113	0.117	0.180	0.180	0.176	0.170	0.174	0.172
mg/L	408	418	363	374	360	365	448	458	441	442	457	462
mg/L	1.19	1.16	1.41	1.28	1.28	1.12	1.32	1.28	1.16	1.22	1.22	1.32
mg/L												
mg/L	5.4	4.8	5.6	4.9	5.4	4.7	5.5	5.3	5.7	5.3	5.4	5.1
mg/L	220	218	220	22	230	232	218	212	202	202	217	192
mg/L	1620	1500	1760	1190	1600	1370	1630	1500	1850	1280	1770	1470
mg/L												
mg/L	0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.03
mg/L												
mg/L												
MPN/L	2800	1600	2200		1700	1300	5400	3500	1400	3500	2400	3500

4.5.2.2

1

pH SS COD_{Cr} BOD_5

15

$$S_{DO_j} = 10 - 9\frac{DO_j}{DO_S} \qquad DO_j < DO_s$$

S_{DO_j} DO

DO_f mg/L

$DO_f = 468/(31.6+T)$ T

DO_j mg/L

DO_s mg/L

4

4.5-11

4.5-11

	1#						2#					
	2022.1.20		2022.1.21		2022.1.23		2022.1.20		2022.1.21		2022.1.22	
pH	0.05	0.05	0.10	0.10	0.10	0.15	0.05	0.10	0.05	0.15	0.15	0.15
	0.80	0.70	0.90	0.77	0.83	0.67	0.77	0.87	0.70	0.87	0.83	0.93
	0.83	0.70	0.87	0.77	0.87	0.73	0.87	0.90	0.77	0.80	0.83	0.77
SS	0.13	0.10	0.19	0.12	0.16	0.11	0.15	0.17	0.12	0.16	0.15	0.19
	0.94	0.96	0.95	0.95	0.93	0.95	0.69	0.71	0.68	0.73	0.72	0.70
	1.30	**1.33**	**1.53**	**1.60**	**1.40**	**1.43**	**1.73**	**1.70**	**1.83**	**1.87**	**1.93**	**1.97**
	0.77	0.76	0.77	0.77	0.74	0.73	0.78	0.79	0.77	0.78	0.74	0.74
	0.68	0.68	0.69	0.64	0.72							

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7

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80% 2022 ,

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2022

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4.5.3

4.5.3.1

1

4.5

6

4.5-13 **4.5-3**

4.5-13

			m	
1#		SW	545	
2#		--	--	
3#		N	100	
4#		SW	1420	
5#		W	130	
6#		N	765	

2

t

(

4#~6#

3

GB/T5760-2006

HJ610-2016

4.5-14

4.5-14

1	pH	pH	HJ 1147-2020	/
2			GB/T 13195-1991	/

17			GB/T 16489-1996	0.005mg/L
18			GB/T 7484-1987	0.05mg/L
19			HJ 484-2009	0.004mg/L
20		1.1	GB/T 5750.7-2006	0.05mg/L
21			GB/T 7493-1987	0.003mg/L

4.5-16

	2022.1.24	2022.1.18	
	1#	2#	3#
pH	7.1	7.1	7.0
mg/L	1588	1042	1692
mg/L	3.15×10^3	2.25×10^3	2.71×10^3
mg/L			

K^++Na^+ Ca^+ Mg^+ CO_3^{2-} HCO_3^-

2

GB/T14848-2017

1.5-4

3

Pi=Ci/Si

Pi

Ci i mg/L

Si i mg/L

pH

Pi=(7.0-pH)/(7.0-pH_{sd})

pH>7 Pi= (pH -7.0)/(pH_{su}-7.0)

Pi pH

pH pH

pH_{sd} pH

pH_{su} pH

4

4.5-17

4.5-17

	2022.1.24	2022.1.18	
	1#	2#	3#
pH	0.07	0.07	0.00
	3.53	**2.32**	**3.76**
	3.15	**2.25**	**2.71**
	0.47	0.55	0.45
	0.05	0.05	0.73
	0.40	0.05	0.70
	0.045	0.003	0.003

4.5-19 **4.5-5**

4.5-19

1#			
2#			
3#			
4#			
5#			
6#			

2

L_{Aeq}

3

2022 1 19 -1 20 2

GB3096-2008 GB12348-2008

4

4.5-20

4.5-20 dB(A)

2022.1.19		1#	57.4	47.1
		2#	58.6	47.7
		3#	57.7	47.1
		4#	58.9	47.8
2022.1.19	5#		49.9	40.5
2022.1.20	6#		53.4	43.2

4.5.4.2

1

GB12348-2008 3 65dB(A) 55dB(A) 4a

70dB(A) 55dB(A)

GB3096-2008 2 60dB(A) 50dB(A)

2

A Leq(A)

$P=Leq-L_b$

P dB(A)

Leq A dB(A)

L_b dB(A)

3

4.5-21

4.5-21 dB(A)

		LAeq	Lb	P	LAeq	Lb	P
	1#	57.4	70	-12.6	47.1	55	-7.9
	2#	58.6		-11.4	47.7		-7.3
	3#	57.7		-12.3	47.1		-7.9
	4#	58.9	65	-6.1	47.8		-7.2
5#		49.9	60	-10.1	40.5	-9.5	-9.5
6#		53.4		-6.6	43.2		-6.8

4.5-21

GB12348-2008 3

GB12348-2008 4a

GB3096-2008 2

4.5.5

4.5.5.1

1

HJ964-2018

4.5

6 4.5-22

4.5-6

4.5-22

1#	420m	116.193E	36.841N	0~0.2m	GB15618-2018 +		
2#	100m	116.199E	36.850N	0~0.2m			
3#		116.195E	36.850N	0~0.5m 0.5~1.5m 1.5~3m	GB36600-2018 +		
4#		116.200E	36.849N	0~0.5m 0.5~1.5m 1.5~3m			

4

4.5-23

4.5-23

1	pH	pH	HJ 962-2018	/
2		/	HJ 680-2013	0.01mg/kg
3				0.002mg/kg
4			GB/T 17141-1997	0.01mg/kg
5		-	HJ 1082-2019	0.5mg/kg
6			HJ 491-2019	1mg/kg
7				10mg/kg
8			HJ 491-2019	3mg/kg
9		/ -	HJ 605-2011	1.0μg/kg
10				1.0μg/kg
11				1.5μg/kg
12	-1,2-			1.3μg/kg
13	-1,2-			1.4μg/kg
14	1,1-			1.2μg/kg
15				1.1μg/kg
16	1,1,1-			1.3μg/kg
17				1.3μg/kg
18				1.9μg/kg
19	1,2-			1.3μg/kg
20				1.2μg/kg
21	1,2-			1.1μg/kg
22	1,1-			1.0μg/kg
23				1.3μg/kg
24	1,1,2-			1.2μg/kg
25				1.4μg/kg
26				1.2μg/kg

27				1.2μg/kg
28	+	/ -	HJ 605-2011	1.2μg/kg
29				1.2μg/kg
30	1,1,1,2-			1.2μg/kg
31	1,1,2,2-			1.2μg/kg
32	1,2-			1.5μg/kg
33	1,4-			1.5μg/kg
34				1.1μg/kg
35	1,2,3-			

	5%
pH	7.92
$cmol^+/kg$	2.8
mV	466
mm/min	0.491
g/cm^3	1.43
%	50.5

4.5-24(2)

	2022.2.9		
	3#		
	0~0.5m	0.5~1.5m	1.5~3m
	116.20436 ° 36.84593 °		
	5%	5%	5%
pH	7.86	8.12	8.01
$cmol^+/kg$	3.0	3.1	3.4
mV	457	449	468
mm/min	0.497	0.475	0.485
g/cm^3	1.45	1.51	1.53
%	49.3	48.9	48.5

1# 4.5-25 2# 4# 5# 6#

4.5-26 3# 4.5-27

4.5-25 1# mg/kg

	pH				
1#	7.92	0.42	0.150	8.85	37
					C_{10}-C_{40}
1#	53	23	22	146	39

4.5-26 2# 4# 5# 6# mg/kg

	2#

+			
2-			

[

5

5.1

100m

130m 500m

600m

5.2

5.2.1

20 2001 2020

20 2001 2020

22.0m/s 2005 41.5

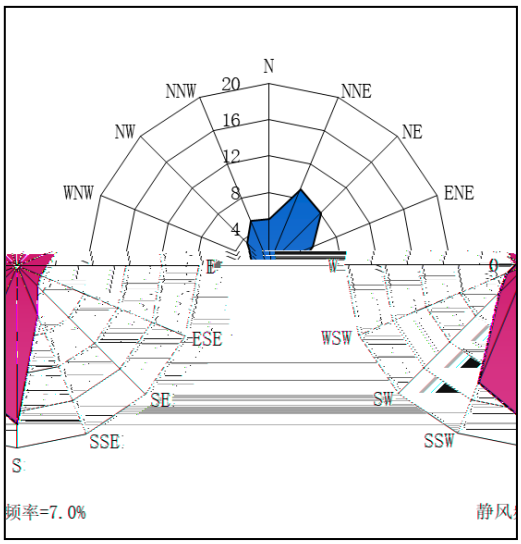
2013 -19.2 2001 802.9mm 2009 20

5.2-1 20 5.2-2 5.2-1

20

5.2-1 20 2001 2020

5.2-2 20 2001 2020



5.2-1 20 2001-2020

5.2.2

HJ2.2-2018 5.3

5.2.2.1

HJ2.2-2018

Pi Pi

$$P_i \quad \frac{C_i}{C_{0i}} \quad 100\%$$

P_i i %

5.2-3

5.2-4 5.2-7 5.2-2

5.2-3

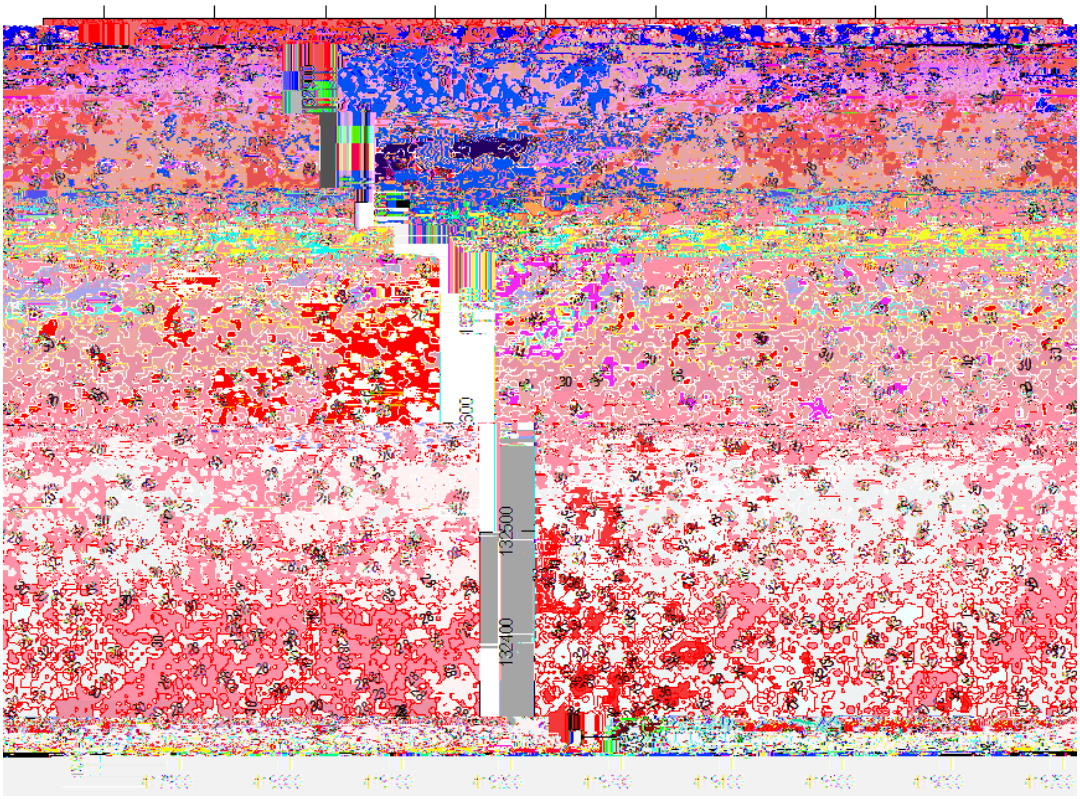
/	/	
		50
/		41.5
/		-19.2
	/m	90m
	/km	/
	/ °	/

5.2-4

			/m	/m	/m	/ m/s	/	/h		/ kg/h
	X	Y								
P1	116.200E	36.846N	29	38	0.8	16.59	114	8400		0.154kg/h $SO_2$0.166kg/h NO_X0.664kg/h VOCs 0.012kg/h 0.0619kg/h 0.0014kg/h 0.0007kg/h
P1	116.200E	36.846N	29	38	0.8	16.59	114	8400		0.271kg/h $SO_2$0.292kg/h NO_X1.168kg/h VOCs 0.0209kg/h 0.1083kg/h 0.0025kg/h 0.00124kg/h

5.2-5

										/ kg/h				
	X	Y	/m	/m	/m	/ °	/m	/h			VOCs			
	116.193E	36.843N	33	90	20	10	33	8400		0.0154	0.066	0.0688	0.008	0.004



5.2-2

5.2.2.2

5.2-8

		mg/m^3	m	$D_{10\%}$	mg/m^3	% P_{max}
P1		0.000779	178		0.45	0.17
	SO_2	0.000839	178		0.5	0.17
	NO_X	0.003357	178		0.20	1.34
	VOCs	0.00006	178		2	0.003
		0.000311	178		0.2	0.16
		0.000007	178		0.05	0.01
		0.001983	46		0.9	0.22
	VOCs	0.008497	46		2	0.42
		0.008857	46		0.2	4.43
		0.00103	46		0.05	2.06

PM_{10} 3 TSP 3

Pmax 1%

Pmax=4.43% 10% HJ2.2-2018

5.2.2.3

HJ2.2-2018 5.4.2

5km

5km 1.6-1 1.6-1

5.2.3

/

5.2-9

	X	Y	/m	/m	/m	/ m/s	/	/h		/ kg/h
P1-1	116.196E	36.846N	29	30	0.8	16.59	30	8400		0.08kg/h VOCs 0.097kg/h
P1-2	116.196E	36.846N	29	30	0.8	16.59	30	8400		0.105kg/h VOCs 0.039kg/h
P1	116.2000E	36.846N	29	38	1.2	6.14	114	8400		0.117kg/h $SO_2$0.126kg/h NO_X0.504kg/h VOCs 0.0089kg/h 0.0464kg/h 0.0011kg/h 0.00054kg/h
P2-1	116.199E	36.849N	29	38	1.2	9.83	114	8400		0.162kg/h $SO_2$0.176kg/h NO_X0.704kg/h VOCs 0.012kg/h 0.063kg/h 0.0015kg/h 0.0007kg/h

5.2.4

5.2.5

5.2-10

5.2-11 5.2-12

5.2-10

			mg/m^3	(kg/h)	(t/a)	mg/m^3	kg/h
1	P1		6.2	0.154	1.29	10	35.8
		SO_2	6.6	0.166	1.391	50	
		NO_x	26.6	0.664	5.578	50	
		VOCs	0.5	0.012	0.10	60	3.0
			2.48	0.0619	0.52		31.8
			0.06	0.0014	0.0121	5	
			0.03	0.0007	0.00588	15	
		1.29t/a VOCs 0.1t/a SO_2 1.391t/a NOx 5.578t/a 0.52t/a 0.0121t/a 0.00588t/a					

5.2-11

						/ mg/m^3	t/a
1					GB16297-1996 2	1.0	0.129
						0.2	0.067
						0.08	0.033
					GB14554-1993 1	1.5	0.578
			VOCs		6 DB37/801.6-2018 3	2.0	0.555

	t/a	0.129
	t/a	0.067
	t/a	0.033
	t/a	0.578
	VOCs t/a	0.555

5.2-12

		%	m^3/h	mg/m^3	kg/h	mg/m^3	kg/h		/h	/	
P1		0	25000	10.8	0.271	10	35.8		1	1	
	SO_2	0		6.6	0.166	50			1	1	
	NO_x	0		26.6	0.664	50			1	1	
	VOCs	0		23.8	0.595	60	3.0		1	1	

[2018]207

100m

[2019]7

100m 50m

4.5

100m 150m

5.2-3

5.2.6.2

GB/39499-2020 15m

$$Q_C / C_m \quad 1/A \quad B \quad L^C \quad 0.25 \quad r^{2\ 0.50} \quad L^D$$

Q_C kg/h

Cm mg/m^3

L m

r m

A B C D

5 1

5.2-13

5.2-13

		m	m	m	(kg/h)	mg/m^3		m	
		90	20	33	0.0154	0.9	1.0	50	100
	VOCs				0.066	2	2.2	50	
					0.0688	0.2	21.6	50	
					0.008	0.05	8.9	50	

5.2-13 100m

100m 130m

500m 600m

5.2-4

5.2-5

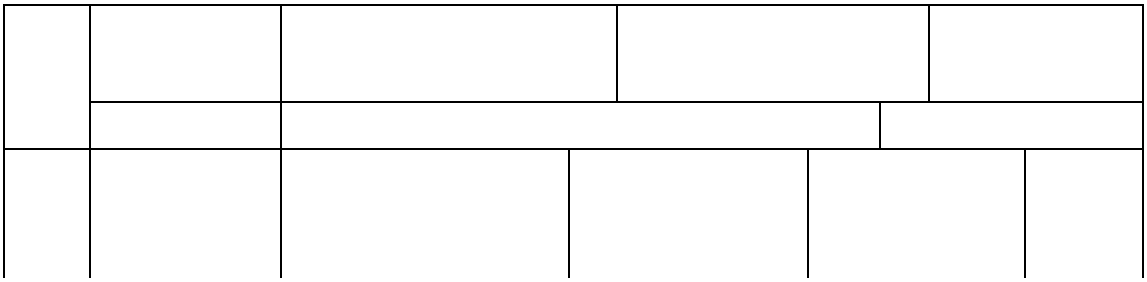
5.2.6

100m

5.2.7

5.2-14

5.2-14



AERMO ADMS AUSTAL200 EDMS/ CALPUF

GB8978-1996 4

5.3-1

5.3-2 5.3-3

5.3-1

1		COD_{Cr} BOD_5			T1			DW001		
2		COD_{Cr} BOD_5 SS	GB8978-1996 4		T2			DW001		

5.3-2

				t/a						/ mg/L
1	DW001	116.185	36.856	1.2439					pH	6-9
									COD_{Cr}	40
									BOD_5	10
										2.0

					GB18918-2002 A COD_{Cr} NH_3-					15 1

5.3.2

(HJ2.3-2018) B

5.3.3

GB8978-1996 4

(GB18918-2002) A

[2017]5 COD_{Cr}

NH_3-

12439m^3/a

COD_{Cr} BOD_5

0.23t/a 0.11t/a 0.021t/a

0.14t/a 12439m^3/a COD_{Cr} BOD_5

0.20t/a 0.10t/a 0.008t/a 0.09t/a

5.3.4

5.3.4.1

2004

8 4 m^3/d

2007 9

8 m^3/d 4 m^3/d

1 A 2009

5 8

16km

3.4-3 3.4.2.3

5.3.4.2

8 m^3/d 2021.7

5.9091 m^3/d 35.54m^3/d

0.17%

18.5mg/L BOD_5 9mg/L 1.69mg/L

BOD_5

5.3.5

12439m^3/a

COD_{Cr} 0.20t/a NH_3-N

0.008t/a COD 40mg/L

5.3.6

5.3-4

5.3-4

			pH	
		40%	40%	

			pH	SS	COD_{Cr} BOD_5

			/ t/a	/ mg/L

12439m^3/a

COD_{Cr} 0.23t/a 0.021t/a

CODcr 12439m^3/a COD_{Cr} 0.20t/a 0.008t/a

				pH COD_{cr} TP TN BOD_5

5.4

5.4.1

5.4.1.1

2 1 2

2 1 2

1 3 7

1 2 3

4 5 6 7

1

2 6

4 5

3

GB50011-2001

7 0.15g

5.4-1

6 -

1.30~2.50m 1.78m

-18.80~-18.20m -18.44m 18.30~18.90m 18.54m

7

6.10~7.10m 6.68m -25.40~-24.70m

-25.08m 24.80~25.50m 25.18m

8

5.4-2~5.4-5

5.4-2

4.4.3.2

HJ610-2016

2

5.4-3

	km^2	
	6-20	

1000m 1000m

2000m 6km^2

5.4.4

5.4.4.1

5.4.4.2

1

GB8978-1996 4

2

5.4.4.3

$100km^2$

5.4-6

2km

5.4.4.4

1

2

5.4-4

		600 3:7 300 C30	6.0m 1.0×10^{-7}cm/s
		100 C10 20 ±0.00 C35	1.5m 1.0×10^{-7}cm/s
		3:7 300	--

C30 P8

250mm 150mm

1.0mm

2mm

100m

2

1m

$^{-7}$cm/s 2mm 2mm

$^{-10}$cm/s

1.5m 1×10^{-7}cm/s

C25 P6

100mm

P6

1.0mm 0.3%

HDPE

5.4.4.5

1

5.4-5

5.4-5

		300mm 400mmC30	P8	6.0m 1.0×10^{-7}cm/s	
		300mm3:7 200mmC30	P6		
		2500mm 350mmC30	P8		
		100 C10 20 ±0.00 C35		1.5m 1.0×10^{-7}cm/s	
		3:7 300		--	

2

5.4-5

2

5.4.4.6

1

5.4-7

5.4-6

5.4-6

1			116.200E 36.849N		pH	

5.4.4.7

5.4.5

5.5

80~90dB(A)

5.5.1

5.5-1

5.5-2

5.5-1 dB(A)

2

m			
1#	2#	3#	4#
40	30	355	385
50	35	350	380
40	30	355	385
60	35	350	380

5.5-3

5.5-3

	m/s	2.4
	/	S
		13.4
	%	69
	atm	1

4

5.5-4

5.5-4

/m				/	
Y	Z	/m			
572	32.01	100			

GB3096-2008

2

A

$L_A(r)$ r A dB(A)

$L_A(r_0)$ r_0 A dB(A)

A_{div} dB(A)

A_{atm} dB(A)

A_{bar} dB(A)

A_{gr} dB(A)

A_{misc} dB(A)

i A L_{Ai} T

t_i j A $L_{A,j}$ T

t_j

N M

L_{eqg} $10\lg[(1/T) \sum_{i=1}^{N} 10^{0.1L_{Ai}} \sum_{j=1}^{M} 10^{0.1L_{Aj}}]$

T N M

5.5.3.3

1 Adiv

a *Adiv=20Lg(r/ro)*

b L_o

r>L_o ro>L_o *Adiv=20Lg(r/ro)*

r<L_o/3 ro<L_o/3 *Adiv=10Lg(r/ro)*

L_o/3<r<L_o L_o/3<ro<L_o *Adiv=15Lg(r/ro)*

2 Aatm

3 Abar

5.5.4

(1)

(2)

(3)

5.5.5

5.5-6

5.5-6

		200m					
		A		A			
		0	1	2	3	4a	4b
		200 m					
		A		A			

5.6

5.6.1

( )

5.6.1.1

1

(

) HJ964-2018 A

VOCs

HJ964-2018 B 5.6-1

5.6-1

5.6-1

2

1800m^2

HJ964-2018 6.2.2.1

2

3

( ) HJ964-2018

5.6-2

5.6-2

100m 200m

4

HJ964-2018 5.6-3

5.6-3

									-
								-	-

5.6.1.2

1

HJ964-2018 8.2

200m

2

50

3

4

5

Is-Ls-Rs / pb ×A ×D

S g/kg

Is g

5880g/a 940000g/a

Ls g 0

Rs g 0

pb kg/m^3 14800kg/m^3

A m^2 200m 474800m^2

D 0.2m

n a

E

Sb g/kg

S g/kg

6

n

5.6-4

5.6-6

<table>
<tr><td colspan="2"></td><td colspan="4"></td></tr>
<tr><td rowspan="8"></td><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">N 100m</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">VOCs SO_2 NO_X TSP</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td colspan="2"></td><td colspan="4"></td></tr>
<tr><td rowspan="5"></td><td></td><td colspan="4">a b c d</td></tr>
<tr><td></td><td colspan="4">4.5-23</td></tr>
<tr><td rowspan="3"></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>1</td><td>2</td><td>0~0.2m</td></tr>
<tr><td></td><td>3</td><td>0</td><td>0~0.5m
0.5~1.5m
1.5~3m</td></tr>
<tr><td></td><td colspan="4">pH
1,1- 1,2- 1,1-
-1,2- -1,2- 1,2-
1,1,1,2- 1,1,2,2- 1,1,1-
1,1,2- 1,2,3-
1,2- 1,4- +
2- [a] [a]
[b] [k] [a h] [1,2,3-cd]</td></tr>
<tr><td rowspan="3"></td><td rowspan="2"></td><td colspan="4">1,1- 1,2- 1,1-
-1,2- -1,2- 1,2- 1,1,1,2-
1,1,2,2- 1,1,1- 1,1,2-
1,2,3- 1,2-
1,4- +
2- [a] [a]
[b] [k] [a h] [1,2,3-cd]</td></tr>
<tr><td colspan="4">GB 15618</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td rowspan="3"></td><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td></td><td colspan="4">200m</td></tr>
</table>

		a b c a b		
		2		

5.6-7

			t/a								
S_1			209						282-999-99		
S_2			672.6						282-999-99		
			0.15				4		282-999-99		
	RTO		16t/5a				5		282-999-99		
			10.5								
		--	2.3						HW49 (900-041-49)	T/In	
			965.55 2.3								

5.6.3

5.6.3.1

5.6.3.2

2021

5.6.3.3

5.6.4

5.6.4.1

GB18599-2020

1

2

1×10^{-7}cm/s

3 GB1556.2-1995

4

5.6.4.2

1

GB18597-2001 2013

1

2

3

4

5.6.5

5.7

[2012]77

[2012]98 HJ169-2018

5.7.1

5.7.1.1

45000 6 /

FDY

5.7.1.2

1

5.7-1

5.7-1

1		1 760m^3 2
2		1 2
3		1 2 3 4 5

2

5.7-2

5.7-2

	8kg	299
	4kg	9
	12kg	299
	35kg	25
CO_2	3kg	82
	--	158
	--	627
	--	76
	--	975
	--	19
	--	144
	--	6
	--	200
	--	40
	--	40
	--	3
	--	2
	--	10
	--	20
	--	5
	--	485
	--	485
	--	485
	--	29
	--	3
	--	1
	--	28
	--	56
	--	43
	--	21
	--	12
	--	29
	--	11
	--	170

	--	388
	--	30
	--	9
	--	5

3

5.7-3

5.7-3

			/
1	pH	PHS-3C	1
2	COD	JH-12	1
3	COD	--	1
4		722N	1
5	BOD_5	--	1
6		--	1
7		--	1
8		--	

5.7.1.3

2020 11 27

371526-2020-001-H

5.7.2

5.7.2.1

HJ 169-2018 B

2015

VOCs

16cm

1.5km $30m^3$ 24kg

5.7-4

5.7-4

			t/a	t		
			93	7		
		37%	105	2.54 0.94	3.9m^3 1	
		20-25%	75	2.84	3.9m^3 1	
			1.5	0.1		
			1520	87		
			400	23		
			477.6408 m^3	0.024		
				0.546		
				0.0121		
				0.00588		
		VOCs		0.1		

5.7.2.2

5.7.2.3

MSDS 5.7-5~ 5.7-10

5.7-5 MSDS

					m-Dihydroxybenzene		
	$C_6H_4(OH)_2$		110.11		608		127
	110.7		276.8				
	=1	1.28		(kJ/mol)	2847.8		
	=1	3.79					
(vol%)							
	6.1						
	LD_{50}301mg/kg( ) 3360mg/kg( ) 29mg/kg						
				UN	2876	CAS NO.	108-46-3
	61725				O53		
					( )		

5.7-6 MSDS

					formaldehyde		
	CH_2O		30.03		430		50 (37%)
	-92		-19.4		13.33kPa(-57.3)( )		
	=1	0.82		(kJ/mol)	2345		
	=1	1.07			137.2		
(vol%)	7.0 7.3						
	8.3						
	LD50 800mg/kg( ) 270mg/kg( ) LC50 590mg/m^3( )						
				UN	1198	CAS NO.	50-00-0
	83012				O53		8
	15						

5.7-7 MSDS

					Ammonium hydroxide Ammonia water		
	NH4OH		35.05				
					1.59kPa(20)		

=1 0.91 (kJ/mol)

5.7-8 MSDS

					Sodiun hydroxide Caustic soda		
	NaOH		40.01		-		-
	318.4		1390		0.13kPa(739)		
	=1	2.12		(kJ/mol)	-		
	=1	-			-		
(vol%)	-						
	-	MAC	2				
	8.2						
	LD50 LC50						
				UN	1823	CAS NO.	1310-73-2
	82001						-
	, ,						
	15 15						

5.7-9

			Natural gas dehydration

	CH_4	16.05	537	-218

5.7-10 MSDS

1			- -5- butadiene vinyl-pyridine rubber latex 50 -
2			- 5- - - 0.9 0.95, -60 -75 50/50 pH 10.0 11.5, 41% 63% 75/25 pH 9.5 11.0 26% 42%
3			-OH 48 20 50% (7 : 3) 10
4	VOCs		VOC VOC

5.7.3

5.7.3.1

1 P

1 Q

B

Q

Q

C.1 Q

$Q=q_1/Q_1+ q_2/Q_2 \quad _n/Q_n$ C.1

q_1 q_2 q_n t

Q_1 Q_2 Q_n t

Q 1

Q 10 100

(HJ 169-2018) B

5.7-11

5.7-11

		CAS	t	t	q_1/Q_1	Q
		108-46-3	7	5	1.4	

37% 50-

3.

6998

10

Q M 5.7-13

P P1 P2 P3 P4

5.7-13 P

Q	M			
	M1	M2	M3	**M4**
	P1	P1	P2	P3
100	P1	P2	P3	P4
10	P2	P3	P4	**P4**

10 M4 5.7-13

P4

2 E

1

E1 E2 E3

5.7-14

5.7-14

E1	5km 5 500m 1000 200m 200
E2	5km 1 5 500m 500 1000 200m 100 200
E3	5km 1 500m 500 200m 100

500m 1000

E1

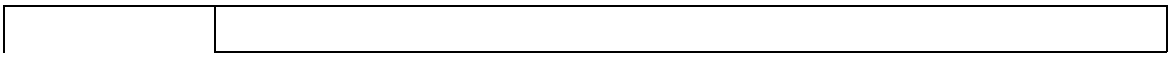
2

E1 E2

E3 5.7-15

5.7-16 5.7-17

5.7-15



F1 F2 **F3**

F3 S3 5.7-15

E3

3

E1

E2 E3 5.7-18

5.7-19 5.7-20

G D

5.7-18

	G1	G2	**G3**
D1	E1	E1	E2
D2	E1	E2	**E3**
D3	E2	E2	E3

5.7-19

G1	
G2	a
G3	
a	

G3

5.7-20

D3	$\times10^{-6}$cm/s
D2	1.0m $\times10^{-6}$cm/s 1.0×10^{-6}cm/s $\times10^{-4}$cm/s
D1	
Mb K	

4.16

3.47×10^{-5}cm/s D2

D2 G3

5.7-18 E3

3

5.7-21

5.7-21

				(m)		
	5km 1.6-1					
	500m					2223
	5km					144072
	E					E1
						24h /km
	1					6.72
	2					
	3					
	E					E3 F3 S3
	1				10^{-6} 10^{-4}cm/s	
	E					E3 D2 G3

4

/ +

5.7-22

5.7-22

E	P			
	P1	P2	P3	P4
E1	+			
E2				
E3				
+				

P4

E1 E3

5.7.3.2

HJ 169-2018 1

5.7-23

	+			

P4 E1

E3

5.7.3.3

(HJ 169

2018) 5km

5km

6km^2

1.6-1 1.6-1 1.6-2

5.7.4

HJ 169-2018

/

5.7.4.1

37% 20-25%

VOCs

5.7-5~ 5.7-10

5.7.4.2

5.7-24

5.7-24

		/		
	VOCs			

5.7.4.3

37% 20-25%

VOCs

/

5.7.4.4

5.7.5

5.7.5.1

110.7

5.7.5.2

(HJ 169-2018) E 10

5.7-26

5.7-26

/ / /	10mm 10min	1.00×10^{-4}/a 5.00×10^{-6}/a 5.00×10^{-6}/a
	10mm 10min	1.00×10^{-4}/a 5.00×10^{-6}/a 5.00×10^{-6}/a
	10mm 10min	1.00×10^{-4}/a 1.25×10^{-8}/a 1.25×10^{-8}/a
		1.00×10^{-8}/a
	10%	5.00×10^{-6}/ m a 1.00×10^{-6}/ m a

	10% 50mm	5.00×10^{-4}/a 1.00×10^{-4}/a
	10% 50mm	3.00×10^{-7}/h 3.00×10^{-8}/h
	10% 50mm	4.00×10^{-5}/h 4.00×10^{-6}/h

5.7-33

10% 4.0×10^{-5}/h

5.7.6

5.7.6.1

1

10%

50mm

$3.9m^3$ 0.02m

QL

$$Q_L = C_d A\rho\sqrt{\frac{2(P - P_0)}{\rho} + 2gh}$$

Q_L kg/s

P Pa

P_0 Pa

kg/m ³

g $9.81m/s^2$

h m

C_d 0.65

A m^2

30min 5.7-27

5.7-27

	P Pa	P_0 Pa	kg/m ^{3}	h m	A m^2	Q_L kg/s
	101325	101325	815	2	0.00000314	0.0104

0.0104kg/s 30min

18.72kg

2

HJ/T169-2018

37%

HJ/T169-2018 F.1.4.3

$(2-n)$ $(4+n)$

[redacted]

Q_3 kg/s

P Pa

R 8.314J/ mol K

T_0 298K

M 0.03kg/mol

u m/s

r m

n 5.7-28

5.7-28

	n	
A B	0.2	3.846×10^{-3}
D	0.25	4.685×10^{-3}
E F	0.3	5.285×10^{-3}

HJ/T169-2018

F 1.5m/s 25 50%

5.7-29

5.7-29

	n		P Pa	u m/s	m^2	r m	min	Q_3 kg/s
F	0.3	5.285×10^{-3}	194	1.5	73.5	4.84	30	0.00032

pH COD SS

3

5.7.7

5.7.7.1

1

1

2 RTO

3

2

1

2

3

4

5

5.7.7.2

1

1

2

3

2

17.5m×4.2m×1.2m

19m 8m 5m 760m^3

$$V = V_1+V_2+V_{max}-V_3$$

$V_1+V_2+V_{max}$

V_1

3.9m^3

V_2

25L/s 2

180m^3

V

V_3

88.2m^3

VOCs

1

2

6

7

8

5.7.7.5

1

2

3

5.7.7.6

1

2

3

4

5

5.7-31

5.7-31

1		1 2 5 **5.7-7**
2		1 GB50160-2008 2 760m^3
3		
4		
5		
6		
7		760m^3 /

5.7.8

4.7.8.1

2020 12 30

371526-2020-001-H

4.7.8.2

1

2

1

5.7-42

5.7-42

	200m 500m 1000m 1500m 2000m	
	2	SO_2 NO_X VOCs

pH BOD_5

COD SS

2 5.7-43

5.7-43

( )

(2) 24

(3)

(4)

3

(5)

5.7.9

5.7-44

5.7-44

				37%	20-25%			
		/t	7	2.54	2.84	0.546	0.0121	0.024
			500m 2223				5km 144072	
			200m					
		Q	Q			100	Q	
		M						
		P						
		+						
							/	
					-1		40 m	

		_____ _____ h
		_____ d
		_____ _____ d
_____		

5.8

2008 2008 264

1

2

20 30m

3

5.8-1

5.8-1

6

نه غ كل

" □ "

□ ضي غ

ˇ ˇ

6.1

6.1.1

خ ˥

غ COD_{Cr} 12439t/a غ ضر ˆ

9.35t/a غ 0.16t/a

ضر ˆ خ ˥

ˇ ˇ ˇ ˇ

لج ˇ ˇ

ˇ ˇ ˇ ˇ

ˇ ˇ ˇ ˇ

6.1.2

6.1.2.1

ˇ

لج

1000m³/d ˇ " + + + "

يح 2.2-16

لج شخ

ضر ˆ خ ˥

10423m³/a شخ 29.78m³/d

لج

600m³/d 1000m³/d 400m³/d

29.78m³/d غج لج

ɜ لج

GB8978-1996 4 غ ˇ ˇ

فجـ ـّ ـّ ـّ

ٓ VOCs U خ

غ ٓ خ شخ غ

U RTO

غ غ غ

U RTO

سمم U 110-140 غج ٓٓ غج

سمم U U VOCs

U غ قمم VOCs

ٓ RTO

ٓا ٓ RTO

شخ ٓپ غج

خ ٓ ٓ ٓپ

ٓ خ U غ

RTO U

RTO ÿ ╪ Ü

5 غ ٿ 6

2 VOCs غ

ٿ 6 DB37/801.6-2018 1

GB14554-93 2

RTO

HJ1093-2020 ٿ 6.1-1

6.1-1 RTO HJ1093

ˆ	HJ1093			ٿ
6.1		105%	105%	ٿ
		95% 98%	RTO ≥ 98% 98%	ٿ
		عج 90%	RTO عج ≥ 95%	ٿ
		GB50051	38m	ٿ
6.2		٨ غج U ٿ	RTO ٱ غج	ٿ
6.3		ضي غ	DN200 RTO	ٿ
		غ ح	ح غج ع	ٿ
		760	RTO 760 750 850	ٿ
6.4		U ٨	U ٨	ٿ
6.5		ٿ 25%	RTO ضي مخ	ٿ

6.2.3 ٿ

225 40000

0.56%

6.3

6.3.1

كل كل ١ ١

80 95dB(A) كل ١ ١

كل

كل A

كل ضي B ١ كح كل

ضي C

كل

كل ٨

ض ٨ غ ضي

ضر

كل ٨

كل ٨ ضي

كل ضي كل

ذ

6.3.2

U لجـ كل ٨ شخ ٨

كل كل GB12348-2008 3 ٨ شخ

كل كل GB12348-2008 4a ٨

كل شخ GB3096-2008 2

غجـ ضر ذ

كل كل ن قمم غ

كل كل 20 40000 0.05%

غج كل ٓ ٓ

6.4

6.4.1

نه نه غ √ نه

غ ٓا جي عمه √

6.4.2

6.4.2.1 نه

نه نه U ٓ ٓ ٓ عمه

جي U

6.4.2.2 √

U √

√

يج √ O 2021 ƕ

“ HW49 900-041-49 Ƨ √

كح Ᵽ ”

نه شخ ٓ

6.4.3

نه ٓ ٓ نه

نه ٓ يج ضر غ 7

نه نه ٓشخ

نه ٓ ٓ

6.5 “ ”

U ضي “ □ ”

غ “ □ ” 6.5-1

6.5-1 “ ”

				“ ”
		U	GB16297-1996 2	
		سمم U خ	DB37/2376-2019 1 ّ ّ ّ

6.6

ٌ كل غ نه U

ضر ٓا يج شخ كل غ U

كل ٓا ٌ

غ غج ٓ

ٌ

7 环境影响经济损益分析

7.1 经济效益分析

7.1-1

表 7.1-1　工程主要经济指标一览表

			40000
		/	152159
		/	143434
		/	8458
		/	2117.2
		/	6340.8
		%	21.1
		%	15.2
			2202
			7.1
		%	47.1

15.2%

7.1　　9.0　　47.1%

7.2 环保投资及效益分析

7.2.1

272　　40000　　0.68%

7.2-1

表 7.2-1　工程环保投资估算表

1			1	10		
2			2	10		
			2	20		
			1	15		
			1	20		

		RTO	1	150		
			1	10		
3				20		
4				2		
5				15		
				272		

7.2.2

7.3 社会效益分析

2

1

2

a

b

c

d

a

b

c

d

8.2

8.2-1

8.3

8.3.1

HJ 1102-2020

HJ 1139-2020

8.3-2

8.3.2

8.3-2

8.3-2

1		JDC-109	1
2		GC-14C	1
3		GC-2010	1
4		AA7002	1
5	COD	JH-12	1
6		PHS-3C	1
7	COD	--	2
8		HS5660A	1
9		2020	1
10		DIS30	1
11		--	1
12		--	1
13		--	

8.4

8.4.1

1

2

3

8.4.2

1

[1996]470

2

DB37/T 2463-2014

3

DB37/T3535-2019

0.5m

≥ 1.2m

100mm × 2mm

≥ 100mm ≤ 10mm

4

8.4.3

1 600mm 300mm

2m

2

GB15562.1

[2003]95

3 **

**

4

8.5

8.5.1

8.5.1.1

“ ”

“ ”

8.5.1.2

“ ” “ ”

SO_2 NO_X

COD NH_3-N

8.5.2

1

12439m^3/a COD_{Cr} 0.20t/a

0.008t/a COD_{Cr}

COD_{Cr}

2

VOCs 0.10t/a

0.0121t/a 0.00588t/a SO_2 1.391t/a NOx 5.578t/a 1.29t/a

VOCs 0.11798t/a 45000t/a

VOCs 0.12052t/a VOCs 0.2385t/a GTZL 2018 078 45000t/a 6 /

VOCs 1.787t/a VOCs VOCs

SO_2 1.391t/a NOx 5.578t/a 1.29t/a

VOCs 0.555t/a 0.067t/a 0.033t/a 0.129t/a

VOCs 0.655t/a

VOCs 0.77298t/a SO_2 1.391t/a NOx 5.578t/a 1.29t/a

[2019]132

2

9

9.1

9.1.1

2019

29

9.1.2

2021 5 19 [2021]6

9.1-1

9.1-1

9.1-1

	85.08km^2 0.99% 165.68km^2 1.92%	**9.1-2**

	40% 28% 90% 14% $PM_{2.5}$ 48ug/m^3 70% 2020 92%	GB3095-2012 RTO

		191 193 20 202 203 22 221 222 25 251 252 26 261 262 263 264 265 266 27 271 29 291 292 30 301 304 307 309 31 311 312 32 321 33 339 35 358 38 384 387 44 441	
		316 - 322 1 20m 2 VOCs 3 ( ) 4	SO_2 NOx RTO

		5	
		2	VOCs VOCs +RTO
		4 VOCs VOCs 6 VOCs 10 11	
		1	

		+ 2 3 4 5 6	
		1 2. 2022 2025 2025 50% 2030 3 GB/T 36575-2018 4 5	

9.1.3

2021 58

9.1-2

9.1-2

	2019	2019	
		VOCs SO_2 NO_X	

9.1.4

9.1-3

9.1-3

9.1.5

2021 2023

9.1-4

9.1-4

[2021]3		

	2023 39600 4400 6% 5	
	2023 10% 150 150 2021 150 2023 90%	

2021

2023

9.1.6 [2021]65

9.1-5

	VOCs	VOCs

	VOCs 0.3m/s	VOCs 0.3m/s
	VOCs VOCs VOCs 800mg/g	VOCs RTO

9.1.7 2021 2025

[2021]30

2021 2025

[2021]30 9.1-6

9.1-6 2021 2025

[2021]30

	2021 2025	
	8	
VOCs	VOCs VOCs VOCs 2025 30 20 15 20% 2021 VOCs VOCs VOCs 2025 2022 2025 80% VOC RTO LDAR LDAR LDAR O_3 LDAR 2023 LDAR	
NOx	2023	

2021 2025

[2021]30

9.2

9.2.1

2003-2020

9.2.2

2003-2020

9.2.3

100m

100m 130m

500m 600m

9.2.4

9.2.5

9.2.6

1

10

10.1

10.1.1

40000

RTO

1

6 2 t

10.1.2

10.1.3

100m

100m

500m

10.1.3

45000t/a 6 /

4.5

45000t/a

10.1.4.1

GB16297-1996 2

DB37/2376-2019 1

GB14554-93 2 VOCs

6

DB37/801.6-2018 1

GB31572-2015 5

GB16297-1996

2

GB16297-1996 2

GB14554-93 1

VOCs

6 DB37/801.6-2018 3

10.1.4.2

GB8978-1996 4

10.1.4.3

10.1.4.4

GB12348-2008 3

GB12348-2008 4a

10.1.5

10.1.5.1

1

4.5

38m P1

GB16297-1996

2

DB37/2376-2019 1

< > [2019]39

GB31572-2015 5

6 2 VOCs

6

DB37/801.6-2018 1

GB14554-93 2

2

GB14554-93 1

GB16297-1996 2 VOCs

6

DB37/801.6-2018 3

3

100m

500m 600m

10.1.5.2

12439m^3/a

COD_{Cr} 15.9mg/L 0.653mg/L

0.20t/a 0.008t/a

10.1.5.3

2

10.1.5.4

10.1.6

10.1.6.1

PM_{10} SO_2 NO_2 CO

O_3 GB3095-2012

PM_{10} $PM_{2.5}$ GB3095-2012

$PM_{2.5}$ PM_{10}

(HJ2.2-2018) D TSP

GB3095-2012

p244

10.1.6.2

1# 2#

GB3838-2002

GB3838-2002

GB18918-2002 A

GB3838-2002

10.1.6.3

5

GB/T14848-2017

10.1.6.4

GB12348-2008 3

GB12348-2008 4a

GB3096-2008 2

10.1.7

10.1.7.1

10.1.7.2

12439m^3/a COD_{Cr} 15.9mg/L 0.653mg/L

0.20t/a 0.008t/a

10.1.7.3

10.1.7.4

GB12348-2008 3

GB12348-2008

10.1.12

10.1.13

10.2

10.2.1

10.2-1

10.2-1

			GB16297-1996 2 DB37/2376-2019 1 < > [2019]39 GB31572-2015 5 6 2 VOCs 6 DB37/801.6-2018 1 GB14554-93 2
		RTO 4.5 1 38m P1 1	
			GB16297-1996 2 GB14554-93 1 VOCs

			6 DB37/801.6-2018 3
			GB8978-1996 4
			GB12348-2008 3 GB12348-2008 4a

10.2.2

1

2 41

3

4

5