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302487 m² 6
5
2018 8 21 [2018] 8
65981m² 2
93332m² 3
143174m² 3 2018
10 2020 2 29 2020
3 1 2020 4 30
2020 4

[2015] 52 <
> [2020] 688
2020 11 16
5
5
2021 5 7
[2021] 8
2021 7
5
3
6 30%

[2015] 52

<

>

[2020] 688

0.2

2022 3

6

2022 4 2

<http://www.fjest.com/article-22597-153300.html>

0.3

1

[a] SO₂ NO₂

2

3

4

5

Ď

6

0.4

0.4.1

2019

2010

[2010]

122

[a]

3

GB12348-2008

3

4

2	SO ₂	7.792t/a
3	VOCs	2.807 t/a
4		

0.5

6

1

1.1

1.1.1

1	2015	1	1	
2	2018	12	29	
3	2018	10	26	
4	2022	6	5	
5	2018	1	1	
6		2020	4	29
7	2019	1	1	
8	2011	3	1	
9	2019	8	26	
10	2019	4	23	
11				16
2021	1	1		
12	2017	10	1	
13	2019	1	1	
14	2019			
				29
15	2019			
11				
16	2021	1	1	
17		2017	10	1
18		2018	8	1
19				
[2012]	98			
20				[2013]37

21	<	>
[2014]30		
22		[2015]17
23		[2016]31
24		
[2017]84		
25	2022	5 1
26		2014 1
27		
2015 26		
28		
	2016	45
29		
	[2018]25	2018 11 6
30		2019 10 13
1.1.2		
1		HJ 2.1-2016
2		HJ 2.3-2018
3		HJ 2.2-2018
4		HJ 2.4-2021
5		HJ 19-2022
6		HJ 169-2018
7		HJ 610-2016
8		HJ 964-2018
9		
HJ 1119-2020		
10		HJ 819-2017
11		HJ 884-2018

1.1.3

1	6				2022	4
2				5		
	2018	6				
3					5	
			2018	8		
4				5		
		2021	3			
5					5	
					2021	5
6						

1.2

1.2.1

1		“	”		“	”
2						
3				“	”	
4						
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6						

“ ”

1.2.2

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1.3

1.3.1

1.3.1

		SO ₂	NO ₂	PM ₁₀	TSP	CO	O ₃	[a]					
		SO ₂				PM ₁₀	[a]						
		SO ₂											
		pH				BOD ₅		NH ₃ -N					
						COD		NH ₃ -N					
						COD		NH ₃ -N					
		L _{Aeq}											
		L _{Aeq}											
		K ⁺	Na ⁺	Ca ²⁺	Mg ²⁺	CO ₃ ²⁻	HCO ₃ ⁻	Cl ⁻	SO ₄ ²⁻	pH			
										Zn	Pb	Cd	As
						Ni	Hg	Cr ⁶					
		COD _{Cr}											
		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]	
				[a]		

1.4

1.4.1

GB36600-2018

2018 8 1

GB15618-1995

GB36600-2018

1.4.2

pH	6~9		GB3838-2002
	4	6	
BOD ₅	3	4	
NH ₃ -N	0.5	1.0	
	0.05	0.05	

3

GB/T14848-2017

1.4.3

1.4.3		mg/L			
1	pH	6.5 8.5	10	≤	0.001
2	≤	3.0	11	≤	0.01
3	≤	250	12	Cr ⁶⁺ ≤	0.05
4	≤	250	13	≤	0.01
5	≤	20.0	14	≤	1.0
6	≤	1.0	15	≤	200
7	≤	0.5	16	≤	0.02
8	≤	450	17	≤	0.005
9	≤	1.0			

4

GB3096-2008

3

GB3096-2008 4a

1.4.4		(GB3096-2008)		dB	
		3		65 55	dB(A)
		4a		70 55	dB(A)

5

GB36600-2018

1.4.5

1.4.5		mg/kg			
1		20	60	120	140
2		20	65	47	172

3	0	0	5	9
4				
5				
6				
7	K}			

A diagram illustrating a boundary line. The line is diagonal, sloping upwards from left to right. The region above the line is labeled kg/h . The region below the line is labeled mg/m^3 . The line is labeled 1.75 on the left and 1.0 on the right.

(GB16297-1996)

 $\perp d(c)$ 

T

2

GB8978-1996

4

GB/T31962-2015 B

3

1.5.1

1

SO₂

[a]

NMHC

HJ2.2-2018

— 100%
0

P_i— i

%

C_i—

i

1h

 $\mu\text{g}/\text{m}^3$ C_{0i}— i

i

 $\mu\text{g}/\text{m}^3$

GB3095

1

1.5.1

1.5.1

/

/

/

40.2

-1.9

90

/km

/

/°

/

1.5.2

			$\mu\text{g}/\text{m}^3$	Cmax $\mu\text{g}/\text{m}^3$	Pmax %
		SO ₂	500	1.4779	0.30
1	5#		450	6.0822	1.35
		[a]	0.0075	0.000013	0.17
		NMHC	2000	0.5392	0.03
2	6#		450	23.6110	5.25
3	7#		450	0.0888	0.02
4	8#		450	0.1998	0.04
5	9#		450	29.9880	6.66
		SO ₂	500	6.71	1.34
			450	0.1454	0.03
6		[a]	0.0075	0.000063	0.84
		NMHC	2000	2.6591	0.13
		SO ₂	500	31.613	6.32
			450	0.6036	0.208
7					

1.5.3

		Q/ m³/d W/
		Q≥20000 W≥600000
A		Q 200 W 6000
B		—

3

3

HJ2.4-2009

4

(HJ610-2016)

69

1.5.4

1.5.4





1.5.5

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“ — ”									

6

93332m²

κ η 2011

Δ

Π

HJ19-2011 * 5% b h ž *

2

7

κ Δ Ď

1.5.2

1.5.7

1.5.7

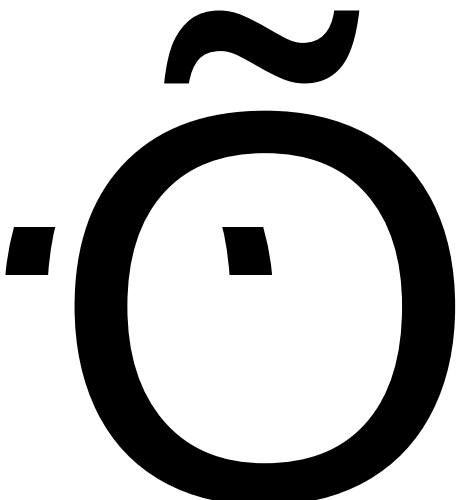
	B	/
		5km
		200m
		50m
		200m

1.6

HJ2.2-2018

غ

DZ



1.6.2

1.6.2

	E					/
						/m
	1		/		D2	/
	E					/

1.7

1.7.1

c

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2.1.1

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24956.14

6000

65981m²

2 ;6 ;1m² s

5

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2021 5 7

[2021] 8

2021 7

⌘

		1 1080
		1 392m ² 50m ² 1 30m ³
		1 1080

2.1.3.2

2.1.2

2.1.2

				/
1		***	***	***
		***	***	***
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		***	***	***
2		***	***	***
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		***	***	***

2.1.4

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2.1.3

G1

+

+15m

1#

G2



2.1-2

2

1 1018m³

15min

2.1.4

	3600m ³ /a	0	
	180m ³ /a	0	
	530m ³ / 7950m ³ /a	0	
	8.8m ³ /d	8.8m ³ /d	

3

2.1.5

2.1.5

				dB(A)	
			/		
	1	***	***	70-75	
	2	***	***	85-90	

	3	***	***	75-80	
	4	***	***	70-75	
	5	***	***	70-75	
	6	***	***	80-85	
	7	***	***	70-75	
	8	***	***	75-80	
	9	***	***	75-80	
	10	***	***	70-75	
	11	***	***	80-85	
	12	***	***	80-90	
	13	***	***	70-75	
	14	***	***	85-95	
	15	***	***	80-90	
	16	***	***	75-80	
	17	***	***	70-75	
	18	***	***	75-85	
	19	***	***	80-85	

4

2.1.6

2.1.6

	t/a		
S1	22	07	309-001-07
	7.65	HW49	900-041-49
S2	1065	46	309-001-46
S3	204	46	309-001-46
S4	220	46	309-001-46
S5	3.5	46	309-001-46
S6	2	99	900-099-99
S7	98		

GB18599-2020

1 50m²

1 30m³

18597-2001

5

2021 4 27

350922-2021-002-L

2021 5 30

2021 7

2021 7 20

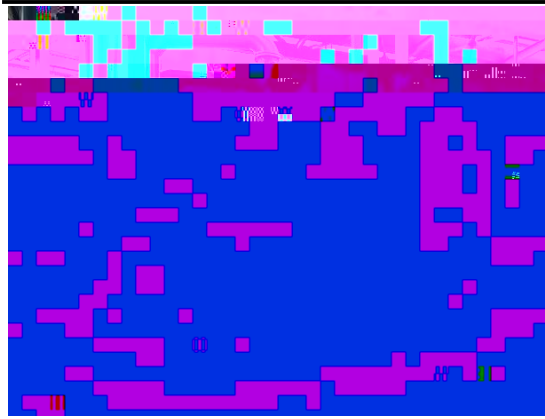
15min

“

+ + ”

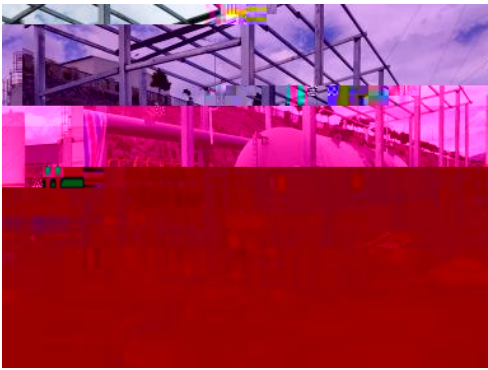
2.1.7

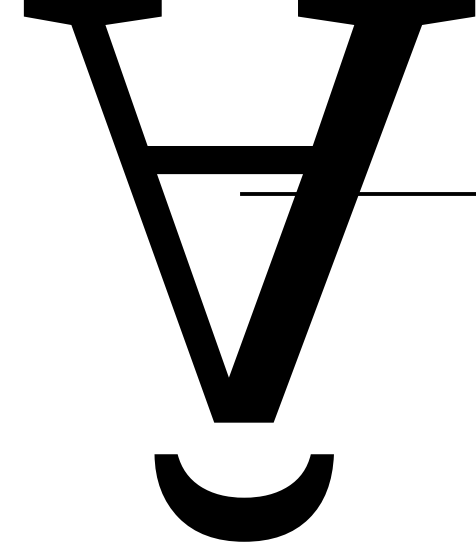
		m ³	m ³
1	1	30	52
2	2	4.5	41.6
3		30	52
4	1	30	78
5	2	4.5	
6	1	1.6	18.25
7	2	1.6	18.25
8	3	2	18.25
9	4	2	18.25
10	2	6	14.96
11	2	8	14.96



1

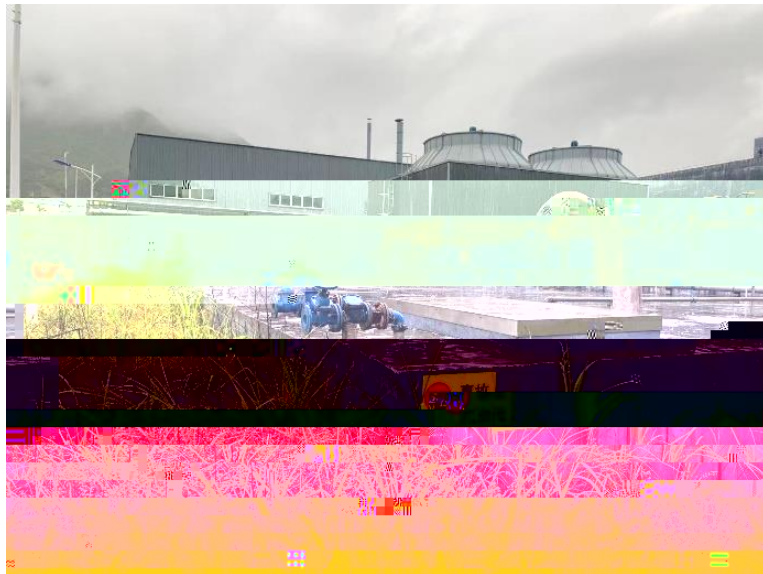
2





1018m³

1



20cm

30cm

20cm

	[a]	
0.093~0.235mg/m ³	0.004~0.019mg/m ³	
	(GB16297-1996)	
0.67~0.97mg/m ³		DB35/
1782-2018	1.33~1.65mg/m ³	
	GB37822-2019	
	DB35/ 1782-2018	
3		
		pH
		GB89784B

3

3.1

3.1.1

2016 10

5

2018

3

XRD

$1 \times 20\text{m}^3$
 $3 \times 20\text{m}^3$
1, m" 72

$1 \times 50\text{m}^3$
 $2 \times 50\text{m}^3$

	5	23760		
	1	8910		
	1	1188		
	1	4320		
	1	4320		
	1	2376	/	
	1	1512		
	1	216		
		544		
	2	2952	1	35KV
		928		
		252		
	1	50		
52	1			

3.1.4

1					
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25					

3.1.3.4

3.1-1

3.1-2

3.1-1

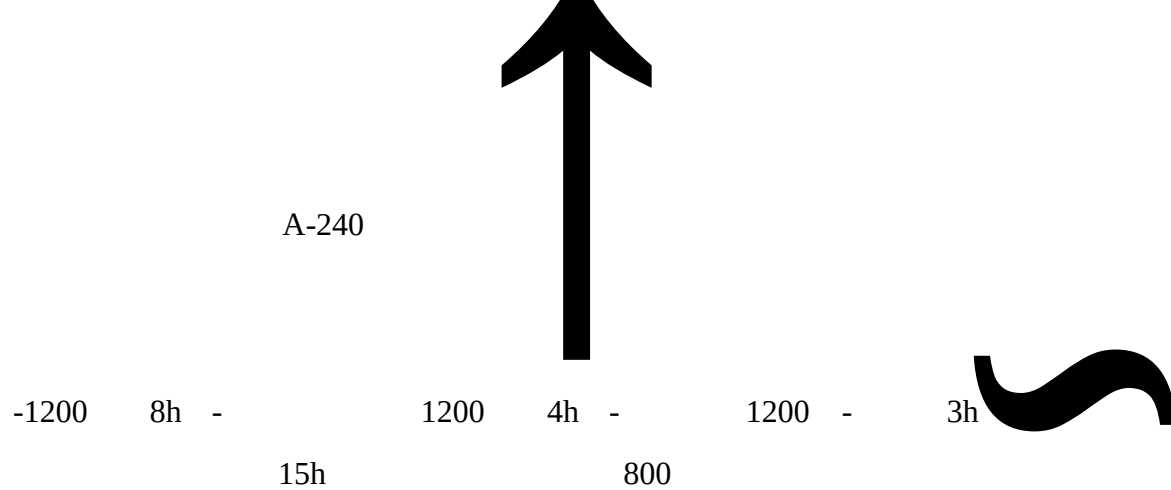
3.1-2

3.1-3

3.1.3.5

1

3.1-4



2

ppm

3.1-5

3

1 24m³/h

3.1.4

1

3.1.5

3.1.6

		(m³/d)							
				(mg/L)	(kg/d)	(mg/L)	(kg/d)		
W1		49	COD _{Cr}	350	17.15	350	17.15	/	
			BOD ₅	175	8.575	175	8.575		
			NH ₃ -N	25	1.225	25	1.225		
				25	1.225	25	1.225		
			SS	300	14.7	300	14.7		
W2		5	COD _{Cr}	1800	9	500	2.5		
			BOD ₅	900	4.5	300	1.5		
			NH ₃ -N	15	0.075	15	0.075		
				600	3	100	0.5		
			SS	500	2.5	300	1.5		
W3		15	COD _{Cr}	30	0.45	30	0.45		
			SS	25	0.38	25	0.38		
		54*							

*

3.1.7

				dB(A)		dB(A)
	N1			60		50
	N2			80		65
	N3			90		75
	N4			95		75-80
	N5			75		65
	N6			85		65
	N7			90		75
	N8			80		65

	N9			100		80
--	----	--	--	-----	--	----

4

3.1.8

3.1.8

		t/a	t/a
S1	/	45	0
S2	/	10	0
S3	/	460	0
S4		1200L	0
S5		900L	0
S6	HW49	1200L	0
S7	900-047-49	1800L	0
S8		180L	0
S9		4200L	0
S10		180L	0
	HW34		
	900-349-34		

[a]	0	0	0
SO ₂	0.005	0	0.005
N			

3.2

3.2.1

6

1

6

2

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4

5

6

7

8

9

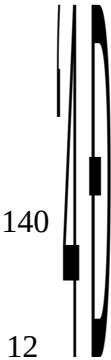
15

52636.09

93332m²

300

300



3.2.2

3.2.1

. j

495m²

830m²

100m²

420m²

4155.39m²

14257.48m

1 15m 6# 6#

1 25m 9#

1

3.2.4

6

3.2.3

GB/T24533-2019

3.2.4

3.2.3

		t/a
1		6

3.2.4

			mA ·h /g	%	g/cm ²	%	%	ppm	ppm	RoHS
NG			≥ 360.0	≥ 95.0	≥ 1.65	≥ 96	≥ 99.97	≤ 0.1	≤ 10	
AG	CMB		≥ 350.0	≥ 95.0	≥ 1.50	≥ 94	≥ 99.97	≤ 0.1	≤ 20	
	NAG		≥ 355.0	≥ 94.0	≥ 1.25	≥ 94	≥ 99.97	≤ 0.1	≤ 20	
	CPAG		≥ 350.0	≥ 95.0	≥ 1.40	≥ 94	≥ 99.97	≤ 0.1	≤ 20	
CG			≥ 350.0	≥ 94.0	≥ 1.60	≥ 94	≥ 99.97	≤ 0.1	≤ 20	

1

2 RoHS

3.2.5

3.2.5

3.2.5

				/	
				/	
				/	

3.2.6~ 3.2.7

3.2.6

					S	
--	--	--	--	--	---	--

	g/cm ³	%	%	/100g	ppm	ppm
	2.24	0.01	0.06	5		0.044

3.2.7

20 40
g/cm³ % % % mm/s %
1.08(08)я і

2				
3				

4

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9				

3.2.7

3.2-1

3.2-2~ 3.2-3

3.2-4

3.2-1

3.2-2

3.2-3

3.2-4

3.2.8

3.2.8.1

D12

3.2-5

3.2-5

3.2-6

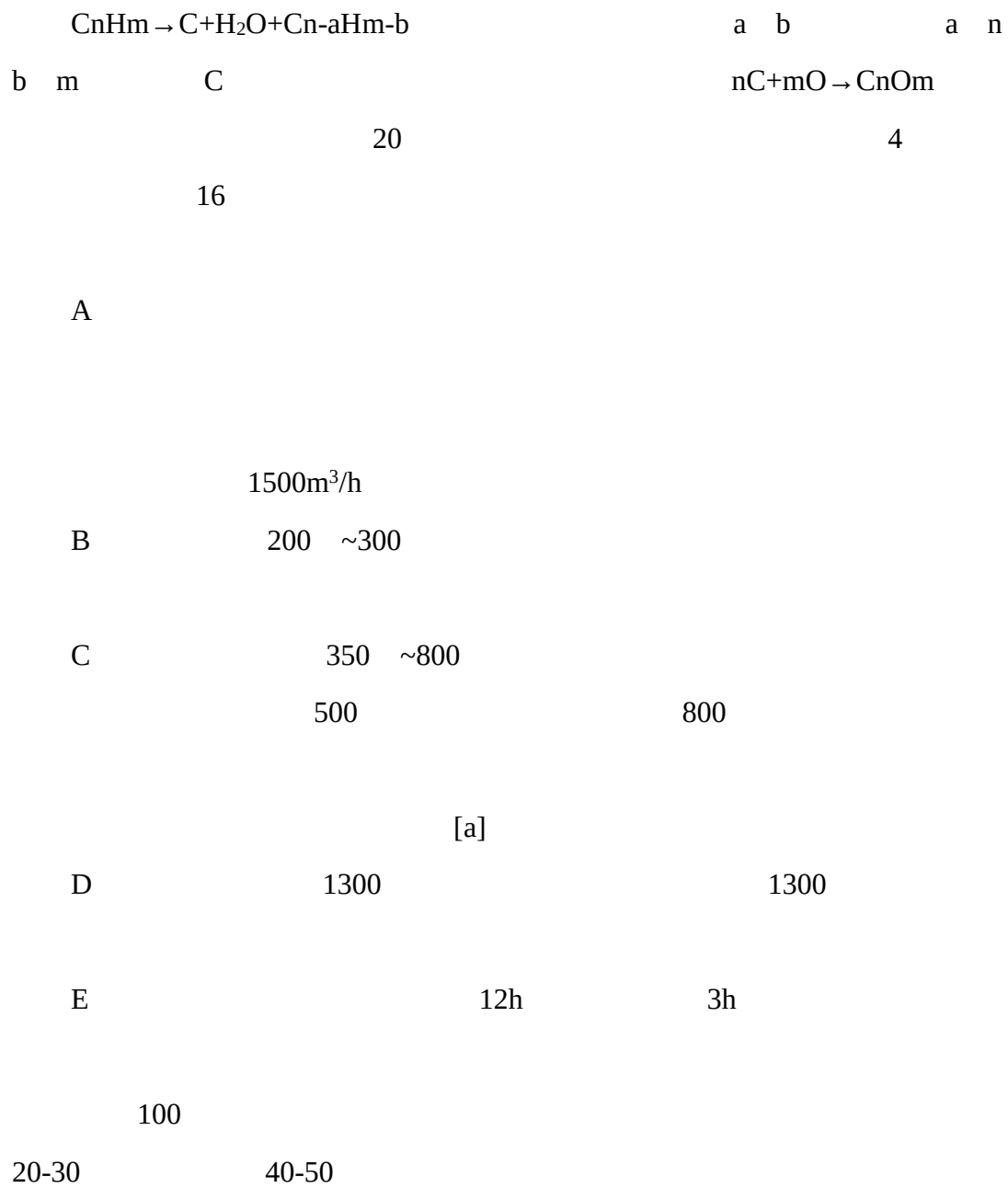
10 1

旋风布袋一体式分离器



3.2-7

φ



2 1 1

3.2-8



3.2-8

F

+ + + + RCO +

3.2.8.2

3.2-9

3.2-9

3.2-10

3.2.8.3

3.2-11

3.2-11

3.2.8.4

3.2-12

3.2-12

3.2.8.5

3.2-13

3.2.8.6

3.2.10

3.2.10

G1					+		
					+		+
G2	SO ₂	[a]			+		+
					RCO		+
G3					+		
G4					+		
GS1							
GS2							
GS3							
GS4	SO ₂	[a]					
W1	pH	COD	SS				
W2	pH	COD	SS				
W3	pH	COD		SS			
N				L _{Aeq}			
S1							
S2							
S3							
S4							
S5							

3

3.2.13

3.2.13

	(t/a)			(t/a)

4

3.2.14

3.2.14

	(t/a)			(t/a)

5

Ÿ В

0

6

175

2565m³/a 8.55m³/d

5

$$Q=F \times q \times \Psi$$

Q

L/s

Ψ

0.9

F

4.1hm²

q

L/s · hm²

218.3L/s · hm²

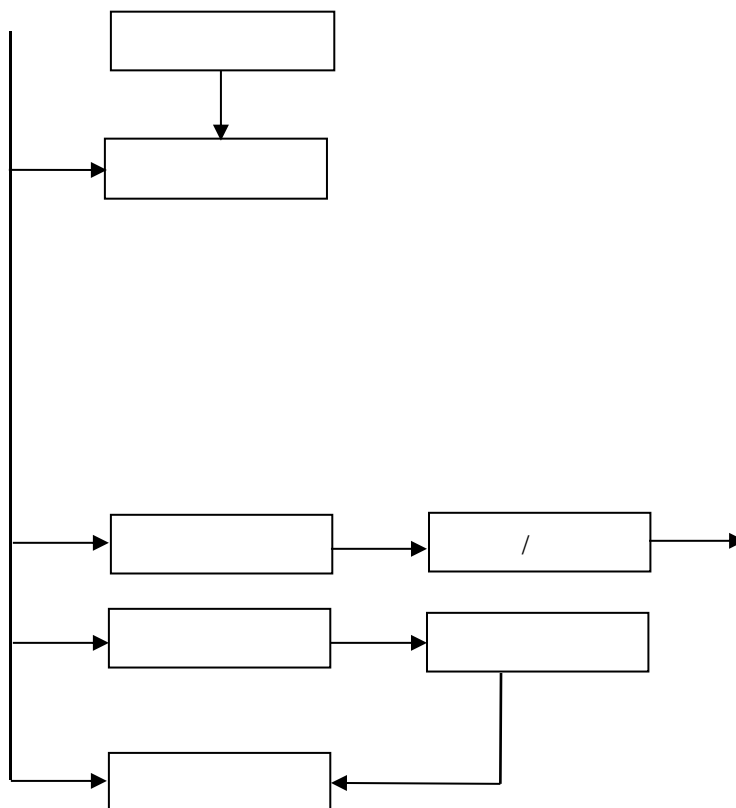
15min

725m³/

15 /

10875m³/a

SS



1012.35m³/d 96000m³/d 97012.35m³/d 1.8m³/d 99%

3.3

3.3.1

+

3.3.1.2

1

3.2.9.1

2

250t

25t/a

12.5t/a

+

15m

3

20000t/a

83.60t/a

+

15m

4

300

3×300 / =900

35g

3%

***	***		15063	31.482			0.346
	***		155.18	0.324			0.004
	***		14907	31.156			0.343
	***		1940	4.055			0.045
	***		13200.066	27.588			0.304
	***		/	94.605			1.041
***	***		53346	111.493			1.227
	***		550	1.150			0.013
	***		52795	110.342			1.214
	***		6829	14.273			0.157
	***		46800.234	97.812			1.076
	***		/	335.069			3.687
***	***		1100	2.299			0.023

3

GS3

0.005kg/t

3.3.2

3.3.2

			t/a	t/a		t/a
***	***		5896.8	0.590		0.590
***	***		6000	0.030		0.030
***	***		37346.437	3.735		3.735
***	***		38000	0.190		0.190
***	***		15530	1.553		1.553
***	***		13200	0.066		0.066
***	***		55000	5.500		5.500
***	***		46800	0.234		0.234
***	***		1100	0.110		0.110

4

GS4

99%

SO₂

[a]

3.3.3

		t/a					h
--	--	-----	--	--	--	--	---

				%	t/a	t/a	
***		16.571	+	99	0.166	0.166	7200
	SO ₂	0.704			0.007	0.007	
		100.441			1.004	1.004	
	[a]	3.04E-04			3.04E-06	3.04E-06	
		12.847			0.128	0.128	
***		104.950			1.049	1.049	7200
	SO ₂	4.460			0.045	0.045	
		636.125			6.361	6.361	
	[a]	0.002			1.92E-05	1.92E-05	
		81.365			0.814	0.814	

3.3.1.3

70~99%

70%

3.3.5

3.3.5

		Nm ³ /h	t/a		%	t/a	h	m
***	***		/	+	/	0.684		

30000

7200

			SO ₂		0.704		/	0.007		/	/
					100.441		/	1.004		/	/
			[a]		3.04E-04		/	3.04E-06		/	/
			NMHC		12.847		/	0.128		/	/
	***	***		/	7.856		70	2.357	7200	/	/
			SO ₂		4.460		/	0.045		/	/
					636.125		/	6.361		/	/
			[a]		0.002		/	1.92E-05		/	/
			NMHC		81.365		/	0.814		/	/
	***	***		/	2.660		70	0.798	7200	/	/
	***	***		/	9.421		70	2.826	7200	/	/
	***	***			0.133	/	/	0.133	600	/	/

3.3.1.4

RCO

8e.0 M

1

5.8

30^{0.e7} 3

1

1 2

2

30

1

1 2

[a]

3 RCO

RCO

30

1

1 2

[a]

60%

70%

80%

3.3.6

5#

Nm³/h

t/a

%

t/a

SO₂

0.603

0

0.603

28.715

90

2.872

86.000

+

70+40

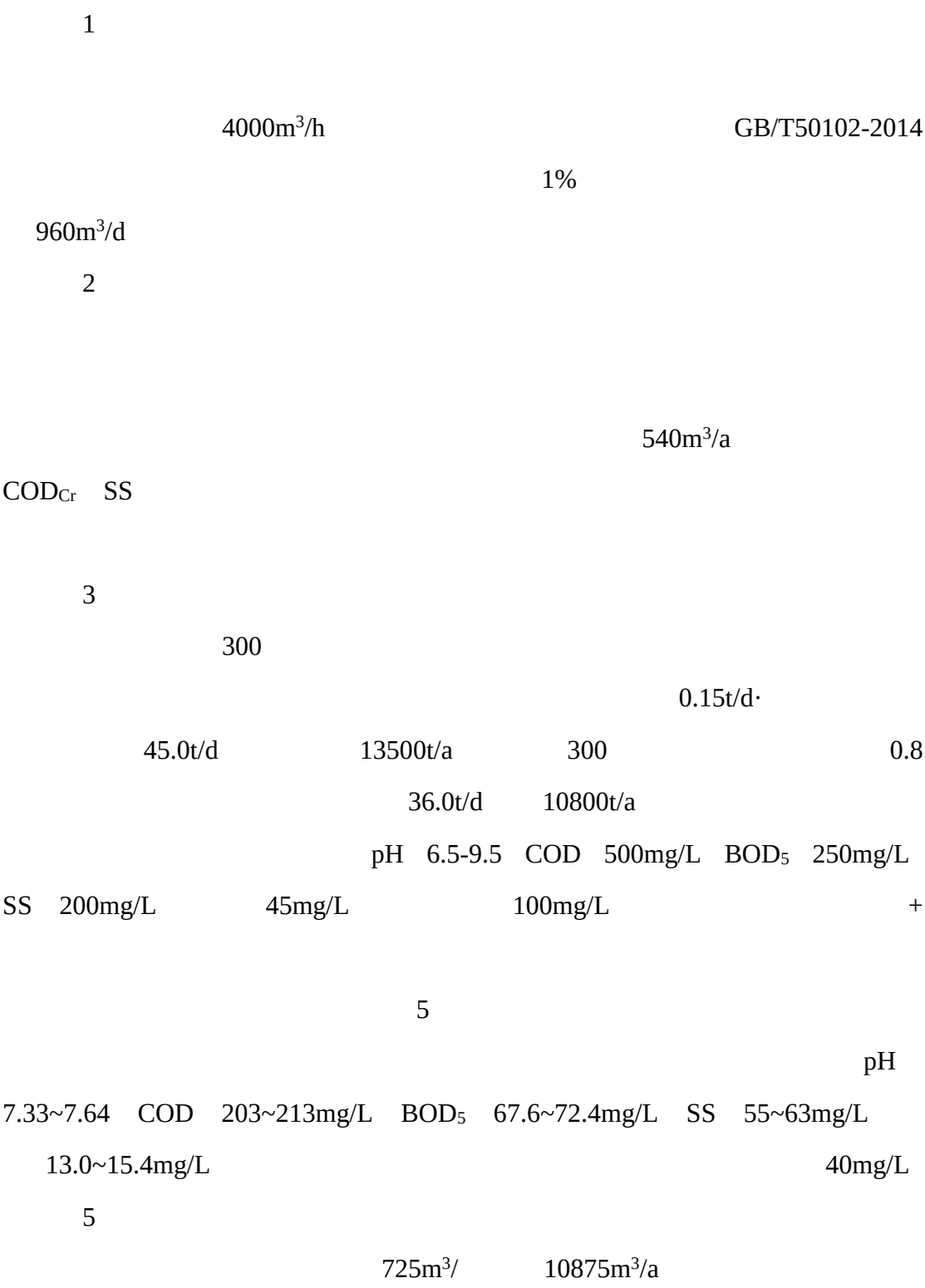
30000

 $+$ $+$

RCO

 $+$

3.3.2



3.3.8

	540m³/a	0	
	725m³/ 10875m³/a	0	
	36.0m³/d	36.0m³/d	

3.3.9

3.3.9

			COD	BOD ₅	SS	NH ₃ -N	
10800m³/a	mg/L		500	250	200	45	100
	t/a		5.400	2.700	2.160	0.486	1.08
		mg/L	213	72.4	63	15.4	40
		t/a	2.300	0.782	0.680	0.166	0.432
	mg/L		500	300	400	45	100
		mg/L	60	20	20	8	3
		t/a	0.648	0.216	0.216	0.086	0.032

3.3.10

3.3.10

	mg/L	t/d	t/a
COD _{Cr}			

DW01

3.3.3

3.3.11

dB(A)

/

1	***	***	70-75	65
2	***	***	85-90	75
3	***	***	75-80	70
4	***	***	70-75	65
5	***	***	70-75	65
6	***	***	80-85	70
7	***	***	70-75	65
8	***	***	85-90	75
9	***	***	75-80	70
10	***	***	70-75	65
11	***	***	70-75	65
12	***	***	80-85	70
13	***	***	70-75	65
14	***	***	75-80	70
15	***	***	75-80	70
16	***	***	70-75	70
17	***	***	80-85	75
18	***	***	70-75	65
19	***	***	75-80	70
20	***	***	75-80	70
21	***	***	70-75	70
22	***	***	80-85	75
23	***	***	70-75	65
24	***	***	80-85	75
25	***	***	85-90	75
26	***	***	85-90	75
27	***	***	75	

	34	***	***	70-75	65	
	35	***	***	85-95	75	
	36	***	***	80-90	70	
	37	***	***	75-80	65	
***	38	***	***	70-75	65	
***	39	***	***	75-85	70	
	40	***	***	80-85	70	

3.3.4

1

PVC

2kg

70900

141.80t/a

GB/T39198-2020

07

309-001-07

2

8769t/a

46 ./ (™» Ĩ

309-001-46

3

1 “ ”

1724.773t/a

ĩ769 κρ ž

309-001-46

5

14.711t/a

46

309-001-46

6

6t/a

99

900-999-99

7

500t/a

7.5

60%

200t

2021

HW11

T

309-001-11

8

2021	HW49	T/In	900-041-49
11			
	“	+	+
RCO	N		+

3.3.13

t/a

3.3

3.3.14

3.3.14

	(t/a)	(t/a)	(t/a)
	10800	0	10800
COD	105400	3.100	2.300
BOD ₅	2.700	1.918	0.782
SS	2.160	1.480	0.680
NH ₃ -N	0.486	0.320	0.166
	1.080	0.648	0.432

	(t/a)	(t/a)	(m)	(m)	()
***	/	1.199			
***	/	7.824			
SO ₂	0.696	0.696			
	16.405	1.641			
***	[432		30	0.95	100

+
+
+
+
+
+
RCO
+

			[a]	1.91E-3	3.82E-5				
			NMHC	80.551	1.611				
		***		/	5.317	15	0.8	25	+
		***		/	18.829	25	1.1	25	+
		***		7.10	0.071	15	0.5	25	+
		***		1.97	0.020	15	0.8	25	+
		***		0.28	0.056	15	0.3	100	
	***		SO ₂	1.078	0.323	72m 90m 12.2m			
				0.704	0.007				
				100.441	1.004				
			[a]	3.04E-04	3.04E-06				
			NMHC	12.847	0.128				
	***		SO ₂	7.856	2.357	182m 90.4m 12.3m			
				4.460	0.045				
				636.125	6.361				
			[a]	0.002	1.92E-05				
			NMHC	81.365	0.814				
	***			2.66	0.798	72m 35.3m 12.2m			
	***			9.421	2.826	90.4m 63.3m 22.3m			
	***			0.133	0.133	10m 10m 15m	/		
				(t/a)	(t/a)	(t/a)			

			141.8	141.8	0	
			8769	8769	0	
			1724.8	1724.8	0	
			2569.9	2569.9	0	
			14.7	14.7	0	
			6.0	6.0	0	
			200	200	0	
			2.0	2.0	0	
			1.05	1.05	0	
			10	10	0	
			8	8	0	
			0.5	0.5	0	
			45.0	45.0	0	

3.4

3.4.1

2019

2010

[2010]

122

3.4.2

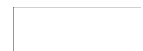
“ ”

3.4.1

“ ”

“ ”

ижеи
© 2019
Технически



3.4.3

3.4.2

3.4.2

10ppb

QZ

1

”

5000 /

85%

85%

GB/T24533-2019

1200kWh/

3 m³/

400

0.1229kg /kWh

1.214kg /m³

148.45kg /

80%

99%

1

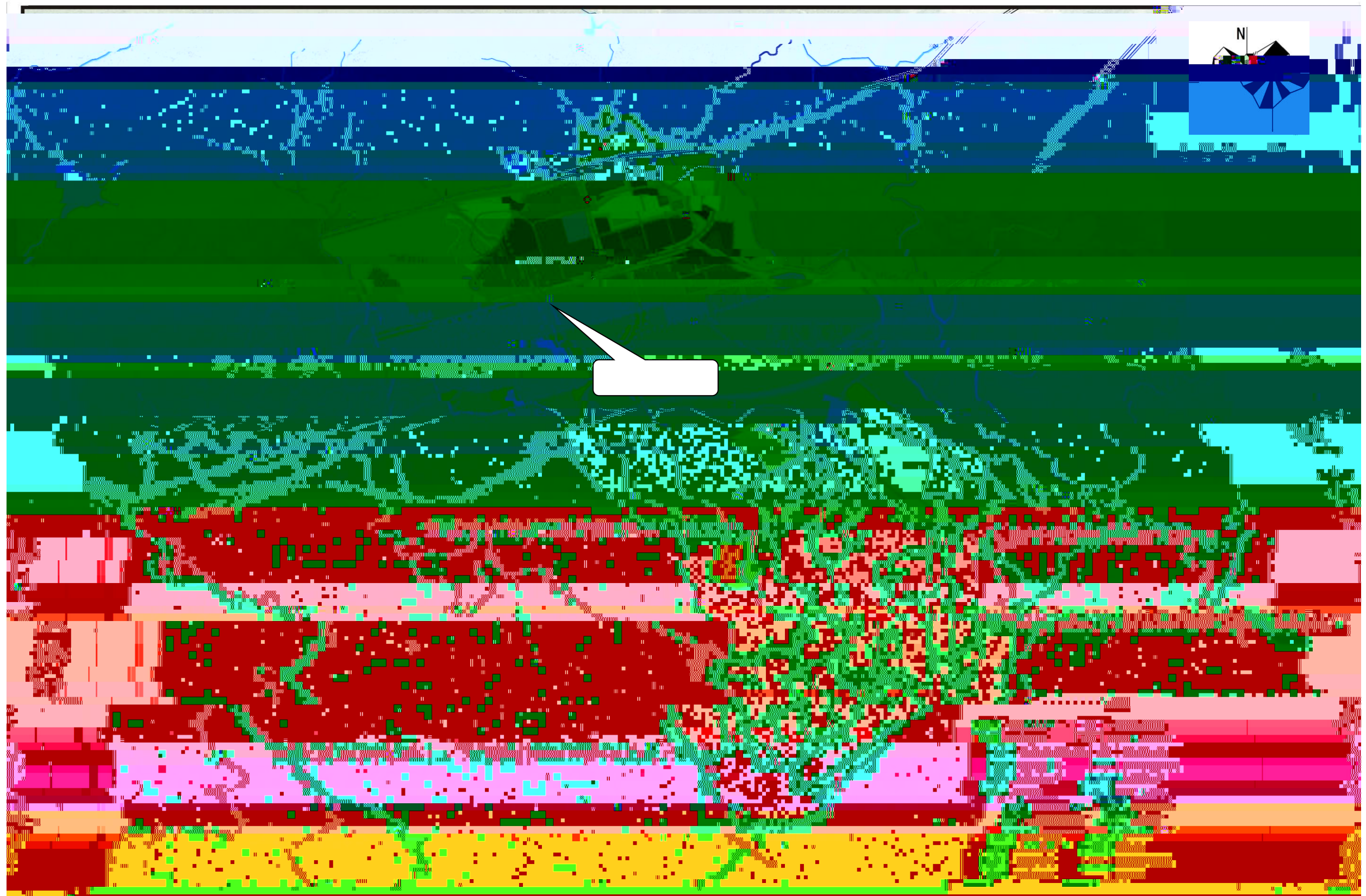
“ ”

٧

٧

3.4.4

2017 12 [



3.4-1

3.4.5

1

2

“ ”

3

4

3.4.5

3.4.6

”

“ ” “

\$

VOCs

, m "

VOCs

100%

✕

✖

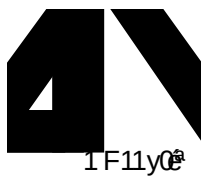
“ ”

“ ”

 $+$ $+$ $+$ $+$

R

 $+$



1F11y03

1

3.4.6

3.5

3.5.1

1

2

3



3.5.4

1

2

3

100%

100%

[a]

GB16297-1996 2

3.5.2

3.5.2

		kg/t	0.86	26.5	0.35
	SO ₂	kg/t	0.08	0.002	0.125
	NO _x	kg/t	/	0.027	0.282
		kg/t	2.29	10.53	1.264
	[a]	kg/t	1.11E-06	1.58E-06	7.5E-06
		kg/t	0.046	5.26	2.1
		m ³ /t	0.18	0.75	0.52
	COD	kg/t	0.038	0.071	0.065
		kg/t	0.003	0.007	0.003

3.5.5

100%

3.5.6

1

2

“ ”

3

“ ”

“

" 70)NCE 4 * 8)B4Z@#EDV@ö0 Sx)† È

THE UNIVERSITY OF CHICAGO

M

é/4/ãv

7

3.5.7

4

4.1

4.2

4.3

4.3.1

4.3.1.1

1

2016

2017-2035

2025

2035

2

8.3924km²

3

2.28

1.23

4.3.1.2

“ ”

“ ”

“ ”

4.3.1.3

4.3.1.4

“ ”

3

2

5

3

4.3-1

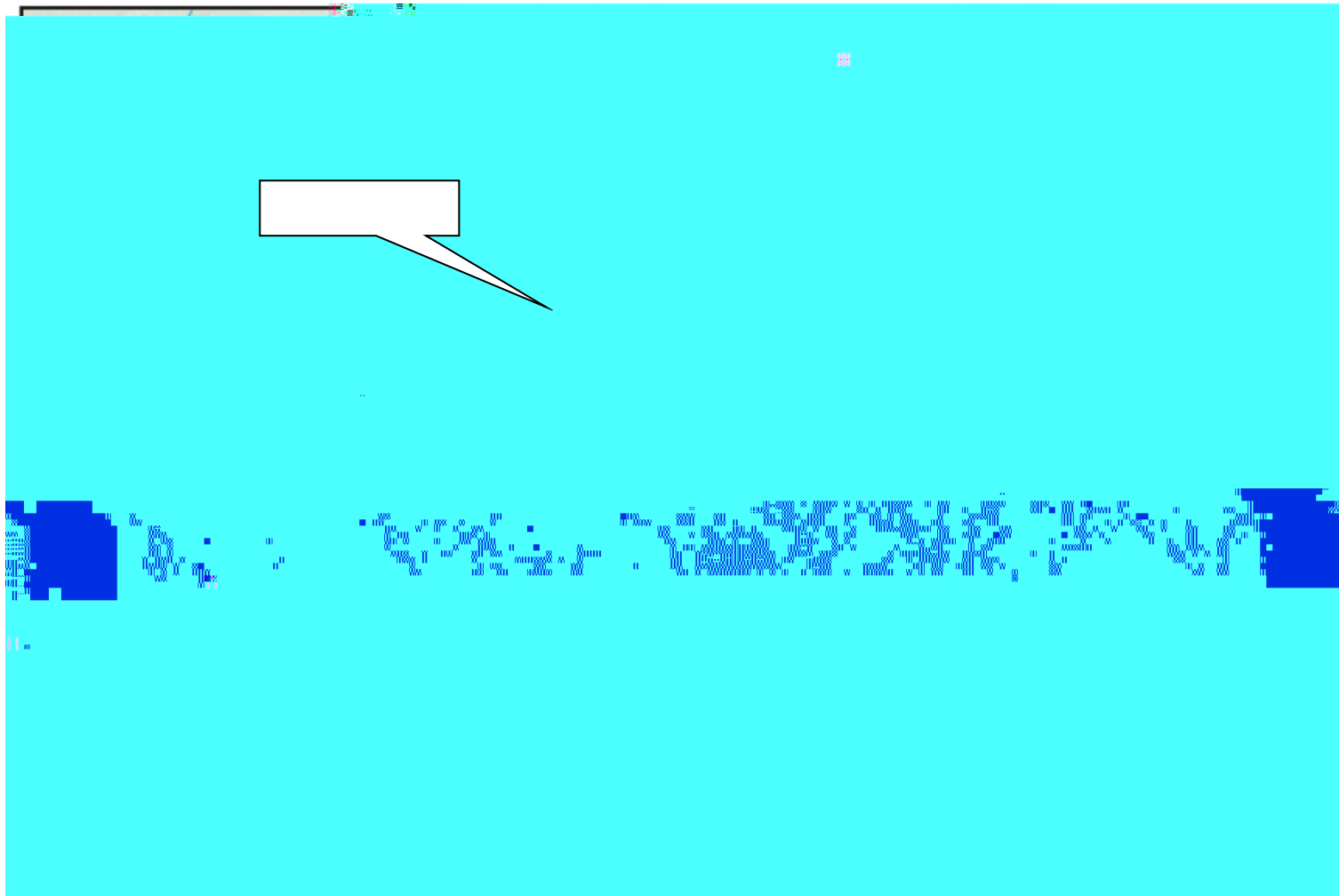
4.3.1.5

8.3924

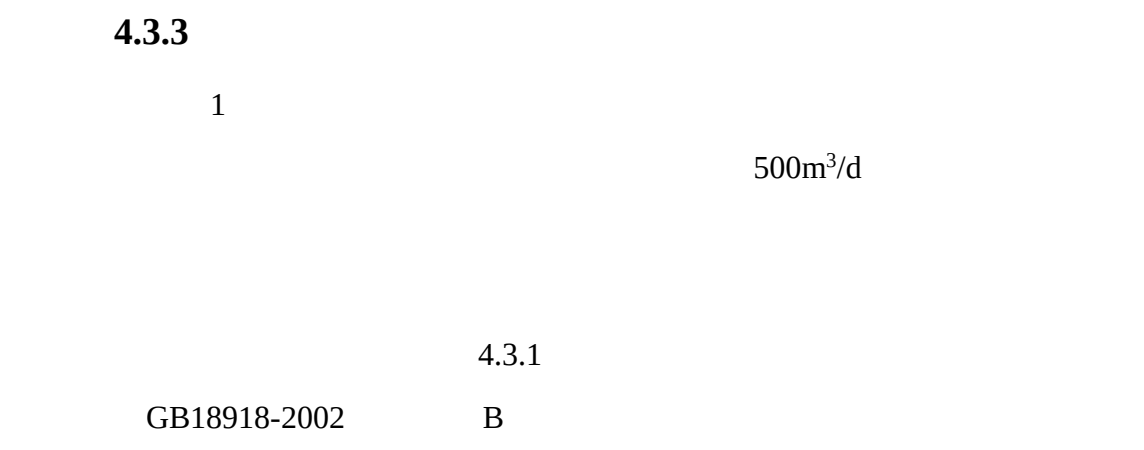
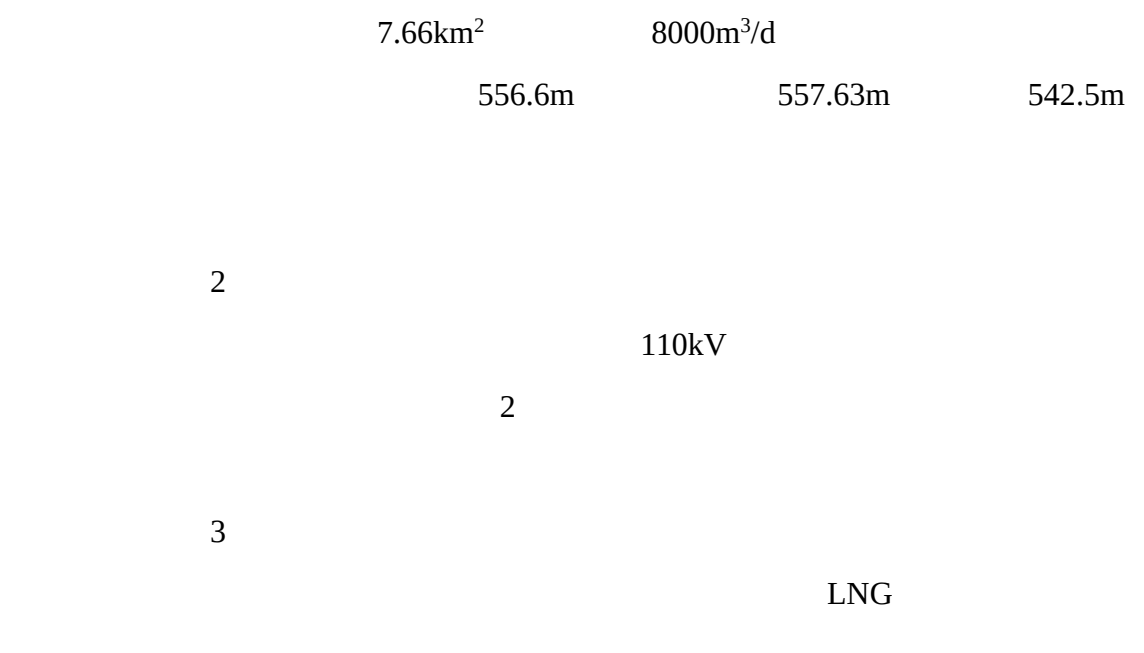
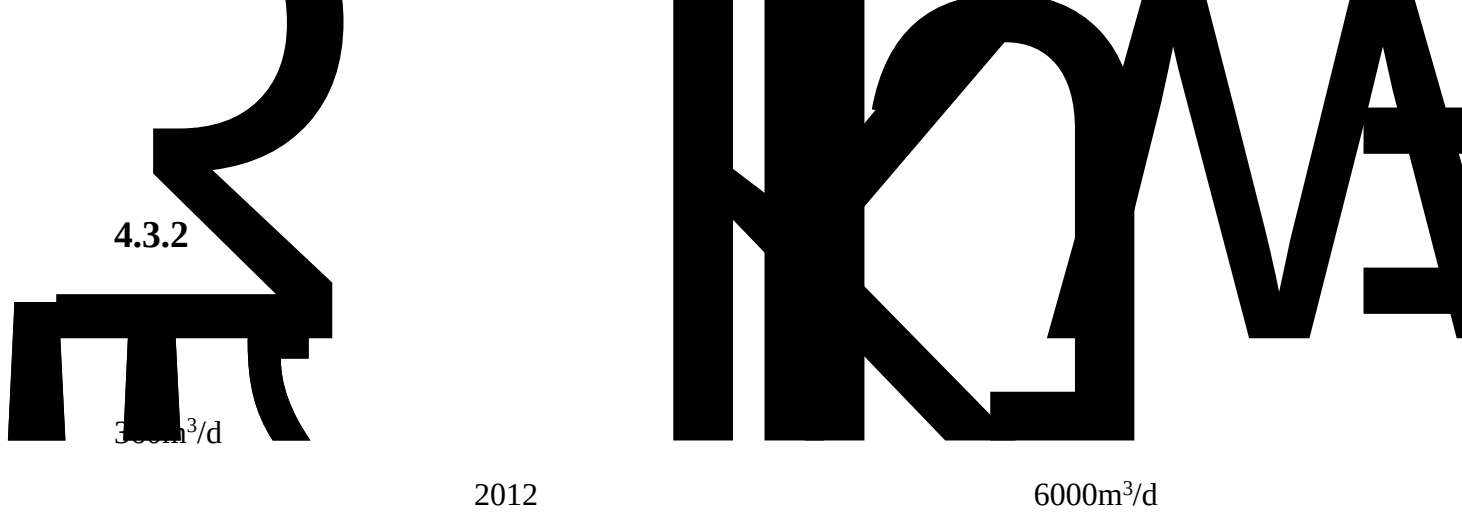
3.9743

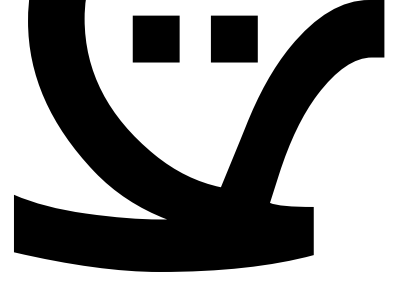
47.36%

3.5-1



4.3-1





2016 3

500t/d

+MBR+

GB18918-2002

B

4.3.1

t/d

500

100

B

300

20

B

10 00

4

0.5

0.0

5	1366	0.15	0.023	0.0031
6	942	0.057	0.008	0.001
7	504	0.05	0.0075	0.001
8	428.4	0.043	0.0064	0.0009
9	1436.4	0.144	0.021	0.0029
10	1921	0.19	0.025	0.0032
11	840	0.084	0.013	0.0017
12	3600	1.08	0.126	0.0036
13	2207.4	0.132	0.018	0.002
14	144	0.009	0.001	0.0001
15				

10		2.798	/	/	
11		0.225	1.802	13.38	
12		0.102	/	/	
13		0.195	/	/	
14		0.044	/	/	
15		0.003	/	/	
16		0.15	/	/	
17		25.189	3.2	22.328	
18		0.164			
19		0.098			
20		0.3265			
21		4.414	/	/	
22		1.913	/	0.172	
23		0.268	/	/	
24		0.3	0.34	1.02	
25		2.07	/	/	
		95.9315	27.764	58.364	

4.4

4.4.1

2021

4.4.1

	$\mu\text{g}/\text{m}^3$				CO mg/m^3	O ₃ 8 $\mu\text{g}/\text{m}^3$
	SO ₂	NO ₂	PM ₁₀	PM _{2.5}		
	***	***	***	***	***	***
GB3095-2012	***	***	***	***	***	***
GB3095-2012	***	***	***	***	***	***

2021

2021

4.4.2

4.4.2.1

5

5.1

5.1.1

5.1.2

COD SS

5.1.2.1

COD BOD₅

SS NH₃-N

20

0.8t/d

5.1.2.2

5.1.3

5.1.3.1

5.1.2

5.1.2

GB12523-2011

70m

70 dB A

55 dB A

GB12523-2011

620m

5.1.4

5.1.4.1

5.1.4.2

5.1.6

1

2

3

4

5.2

5.2.1

5.2.1.1

		2020		C	SE
ESE	SSE	53.4	SE	12.4	
	D				

5.2.1.4

1

5.2.8

5.2.8

			t/a	kg/h			
					m	m	
1	5#	SO ₂	5.112	0.710	30	0.95	100
			21.038	2.922			
			130.505	18.126			
		[a]	4.422E-05	6.142E-06			
		NMHC	1.865	0.259			
2	6#		5.317	0.738	15	0.8	25
3	7#		18.829	2.615	15	1.1	25
4	8#		0.071	0.006	15	0.5	25

5	9#		0.020	0.003	25	0.8	25
			t/a	kg/h			m
1		SO ₂	0.323	0.045	72m 90m		12.2
			0.007	0.001			
			1.004	0.139			
		[a]	3.04E-06	4.222E-07			
		NMHC	0.128	0.018			
2		SO ₂	2.357	0.327	182m 90.4m		12.3
			0.045	0.006			
			6.361	0.883			
		[a]	1.92E-05	2.667E-06			
		NMHC	0.814	0.113			
3			0.798	0.111	72m 24m		12.2
4			2.826	0.393	90.4m 63.3m		22.3
5			0.133	0.222	10m 10m		15

2

1.5.1

Ci mg/m³

Pi %

7.93%

-

HJ2.2-2018

1

2.5km

3

-

HJ 2.2-2018

SO₂

[a]

5.2.9

5.2.9

(t/a)

(t/a)

(m)

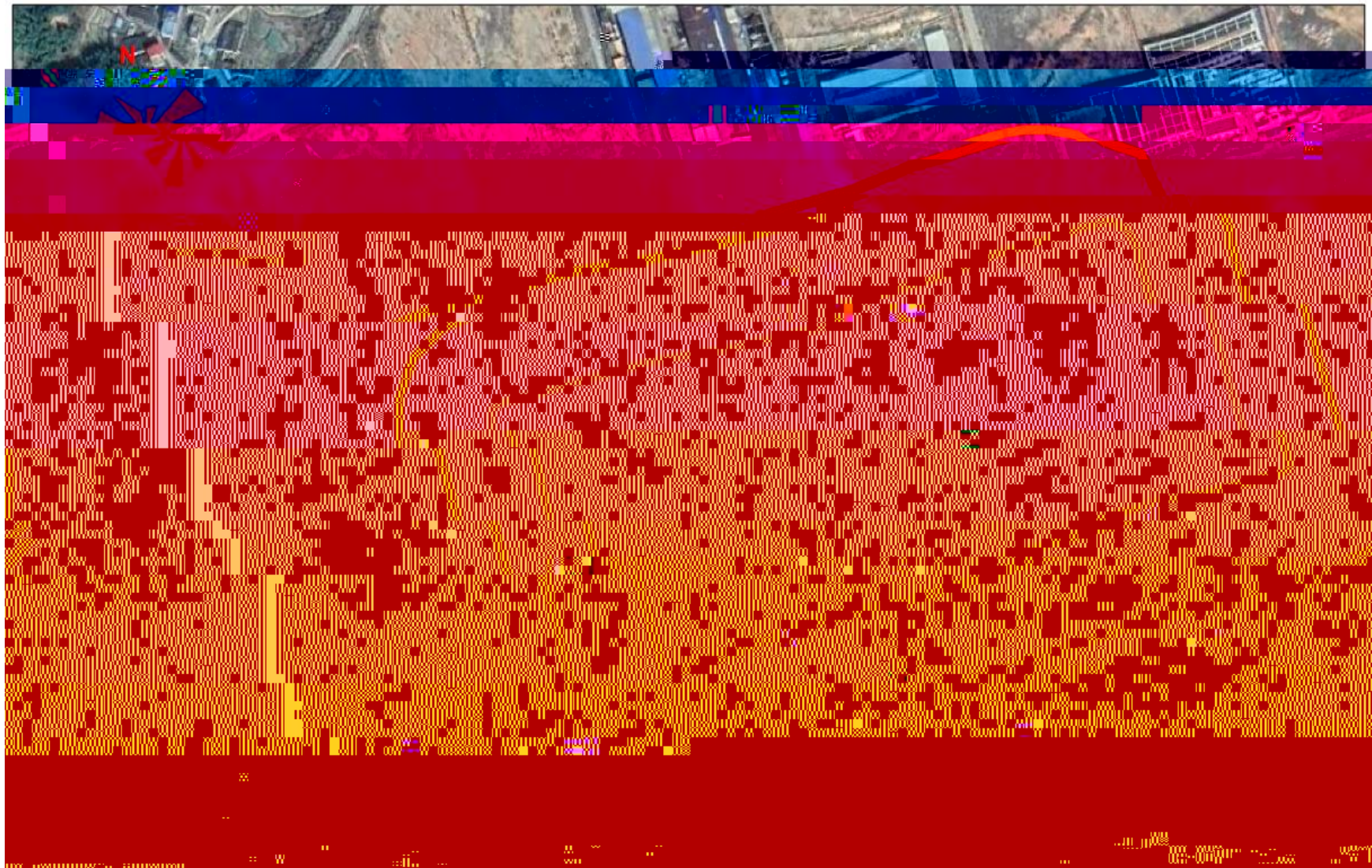
Be

	0.704	0.007	12.2m	
	100.441	1.004		
[a]	3.04E-04	3.04E-06		
NMHC	12.847	0.128		
SO ₂	3.856	2.357		
	4.460	0.045		
	636.125	6.361	182m	90.4m
[a]	0.002	1.92E-05	12.3m	
NMHC	81.5			

		100	0.222	80	100
--	--	-----	-------	----	-----

100m

5.2-16



5.2-16

5.2.2

1

960m³/d

36.25m³/d 10875m³/a < 960m³/d

2

36.00m³/d

D

GB8978-1996

3

 $725\text{m}^3/$

SS

5.2.11

დავ. ბ. ჯაფარიძე

L **I**

5.2.11

... 119*22 0 4*2 V

540m³/a

0

2.

5.2.2.1

+

5.2.2.2

5.2.2.3

36.00m³/d

COD

SS

5.2.13

ǎ

ψ

40%

40%

p ¥

COD_{Mn}
 COD_{Mn} 213mg/L

HJ610-2016

$$C = C_0 \frac{1}{2} \left[\operatorname{erfc} \frac{x - ut}{2\sqrt{D_L t}} \right] + \frac{1}{2} \frac{U}{D_L} \operatorname{erfc} \frac{x + ut}{2\sqrt{D_L t}}$$

x — m

t — d

C — x mg/L

C₀ — mg/L

D_L — m²/d

U — m/d

erfc —

U

DL

a.

0.75m/d

0.02

Gelhar 1992

aL 10.0m

DL

$$DL=aL \times u=10 \times 0.0375=0.375m^2/d$$

$$U=K \times I/n$$

U— m/d

K— m/d

I—

n—

$$U=0.75 \times 0.02/0.4=0.0375m/d$$

COD_{Mn}

100 365 1000 3650 4

5.2.14

5.2.14

III

m

m

COD_{Mn} 3.0m

COD 213mg/L 100d 16m
 1000d 62m 3650d 10a 150m

5.2.3

5.2.3.1

5.2.15

5.2.15

			/	dB(A)		
	1			70-75	65	
	2			85-90	75	
	3			75-80	70	
	4			70-75	65	
	5			70-75	65	
	6			80-85	70	
	7			70-75	65	
	8			85-90	75	
	9			75-80	70	
	10			70-75	65	
	11			70-75	65	
	12			80-85	70	
	13			70-75	65	
	14			75-80	70	
	15			75-80	70	
	16			70-75	70	
	17			80-85	75	
	18			70-75	65	
	19			75-80	70	

	20			65-80	70	
	21			70-75	70	
	22			80-85	75	
	23			70-75	65	
	24			80-85	75	
	25			85-90	75	
	26			85-90	75	
	27			75-80	70	
	28			85-90	75	
	29			75-80	70	
	30			80-85	75	
	31			70-75	65	
	32			85-90	75	
	33			80-90	70	
	34			70-75	65	
	35			85-95	75	
	36			80-90	70	
	37			75-80	65	
	38			70-75	65	
	39			75-85	70	
	40			80-85	70	

5.2.3.2

HJ2.4-2009

—
—
—
—
0 —

0

2

A

$$10 \lg \frac{A_2}{A_1} = 6$$

$$10 \lg \frac{A_2}{A_1} = \frac{4}{2}$$

—
e —
—
1 —
2 —
—
—
—
—

3

500HZ

dB

2()

A—

B—

d—

λ —

4

A_{atm}

$$A_{atm} = \frac{a(r - r_0)}{1000}$$

a

5.2.16

a dB/ km

%

N1

32.1

62.3

62.3

32.1

53.2

53.2

65

55

-2

S8			HW49	900-047-49		2.8t	180d
S9			HW08	900-249-08		2.8t	180d
S10			HW49	900-041-49		2.8t	180d
S11			HW49	900-039-49		2.8t	180d
			HW49	900-041-49		2.8t	180d

180

20d

100m²

2

1

GB18597-2001

2013

-

GB15562.2-1995

FfEǺV8

[2005] 9 JT617 JT618

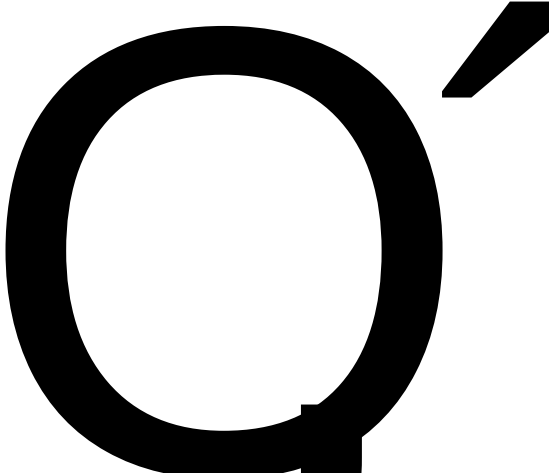
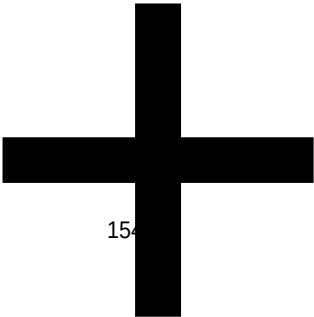
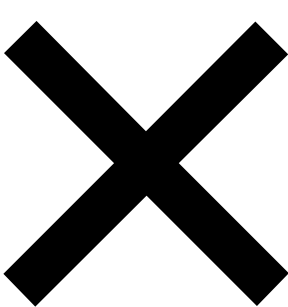
4

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X A m "
Q^>|
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5.2.19

	t/a		
S1	141.8		
S2	8769		
S3	1724.8	342m ²	60d
S4	2569.9		
S5	14.7		
S6	6.0		
S7	200	50m ³	60d
S8	2.0		
S9	1.05		
S10	10	100m ²	180d
S11	8		
S12	0.5		
S13	45.0	/	

5.2.4.5

5.2.5

5.2.5.1

1

2

3

4

5.2.5.2

1

2

5.2.5.3

“ ”

	✓	/	✓	/
	/	/	/	/

5.2.21 ę ĩ ó

	/				
			SO ₂ [a]	[a]	
			pH COD	/	

a

Rs—g

ρ_b —kg/m³

A—m²50m713000m²

D—0.2m

n—a20a

S=S_b+ΔS

S_b—g/kg

S—g/kg

5.2.22

5.2.22

	Is g	Ls g	Rs g	ρ_b kg/m ³	A m ²	n
[a]	7.65	0	0	1800	713000	20

5.2.23

5.2.23

	ΔS mg/kg	S _b mg/kg	S mg/kg	mg/kg		
[a]	0.0006	0.1	0.1006	0.55	1.5	

[a]

GB36600-2018

5.2.5.5

5.2.24

9.0 hxp ĩ % Ø

		2-	[a]	[a]
[b]	[k]		[a h]	[1 2]
		3-cd]		
GB 15618	GB 36600	D.1	D.2	
		GB36600-2018		
		/		
	E	F		
	a	b	c	a b

* 0⁰

>D

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3

GB/T50934-2013

A.

B.

C.

D.

5

HJ/T164-2004

3

1

2

pH

[a]

6

HJ/T166-2004

3

pH

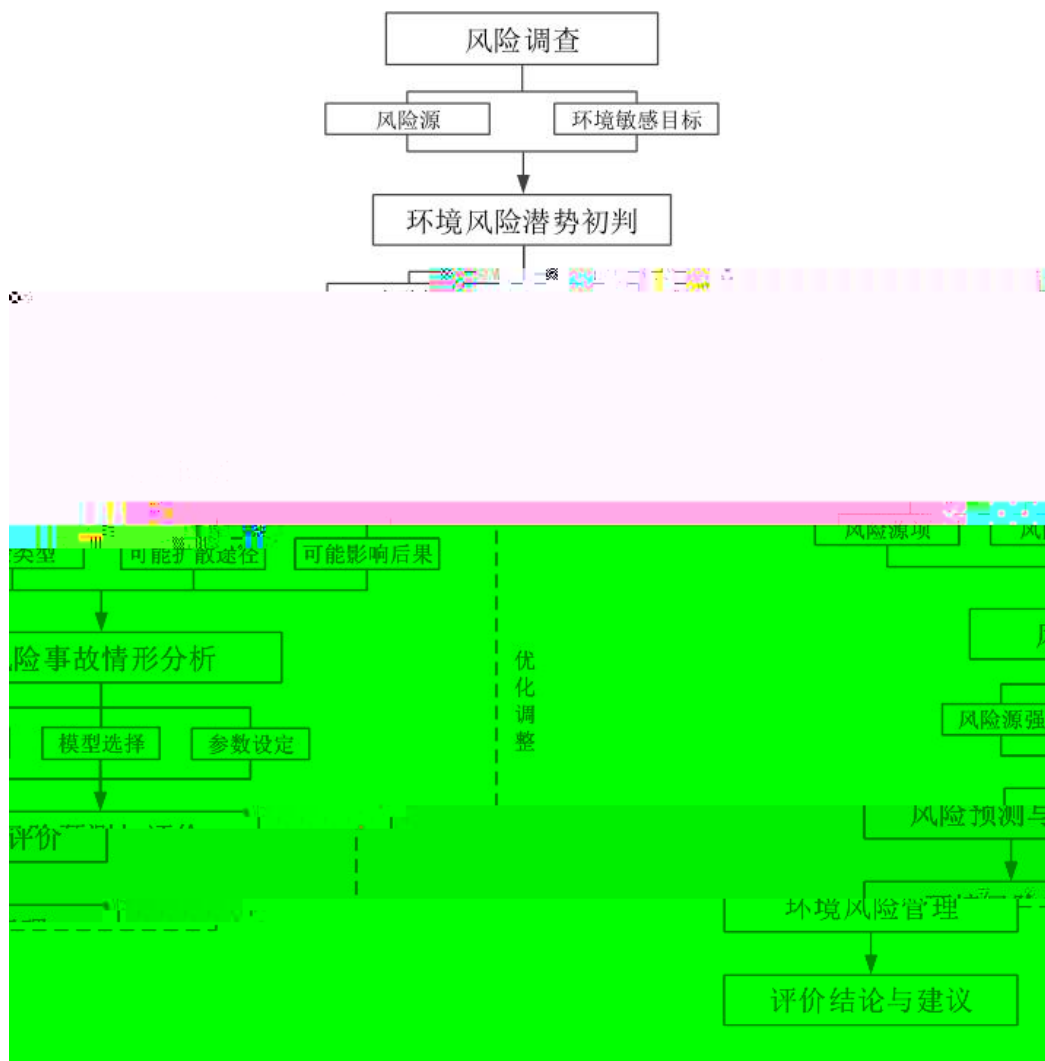
[a]

7

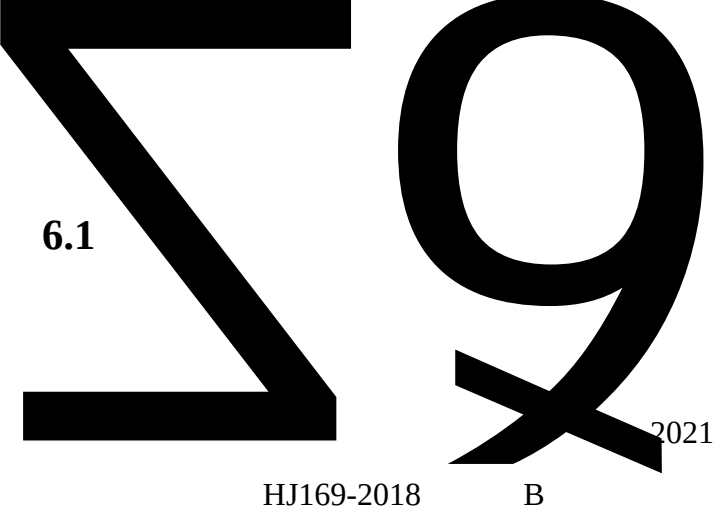
5.2-18

6

6.1-1



6.1-1



HJ169-2018 B

“ ” /

6.1.1

ב ו א ך

Q B

6.1.2

1

2

3

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/

CO₂ H₂O
CO

4

6.1.3

6.1.3

1						
2						
3			SO ₂ NO ₂ [a]			
4			NMHC			
5			COD SS			
6						

6.2

6.2.1 P

HJ

169-2018

1

Q

B

B

Q

Q

Q

q1 q2 ... qn—

t

Q1 Q2 ... Qn——

t

m

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1.6.3

6.3

6.3.1

CO₂ CO CO

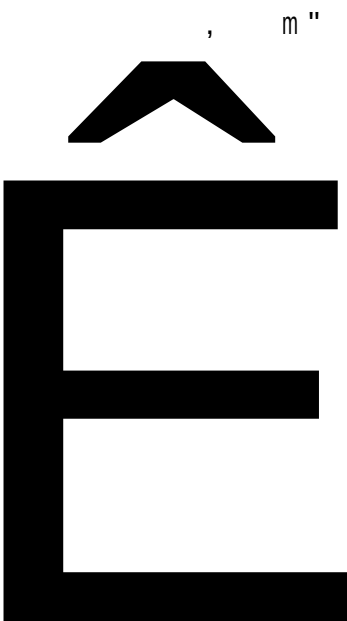
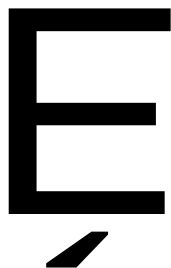
1200m³

6.3.5⁹ ʏ qʒ

+ + + + RCO
+
1 ʏ 9 ʌ „

[a]

6.3.6



GB50974-2014

20L/s

10L/s

6h

2

20+10 L/s

$V_2=648\text{m}^3$

V_3

0m^3

V_4

0m^3

V_5

$q_{—}$

mm

$q_a_{—}$

1882mm

$n_{—}$

175

$f_{—}$

hm^2 4.1 hm^2

i

$V_5=440\text{m}^3$

$V = 0+648-0 +0+440=1088\text{m}^3$

1100m^3

" 1200m^3

b_3

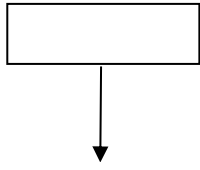
.. √ √ √ √ √ √ √ √ √

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14

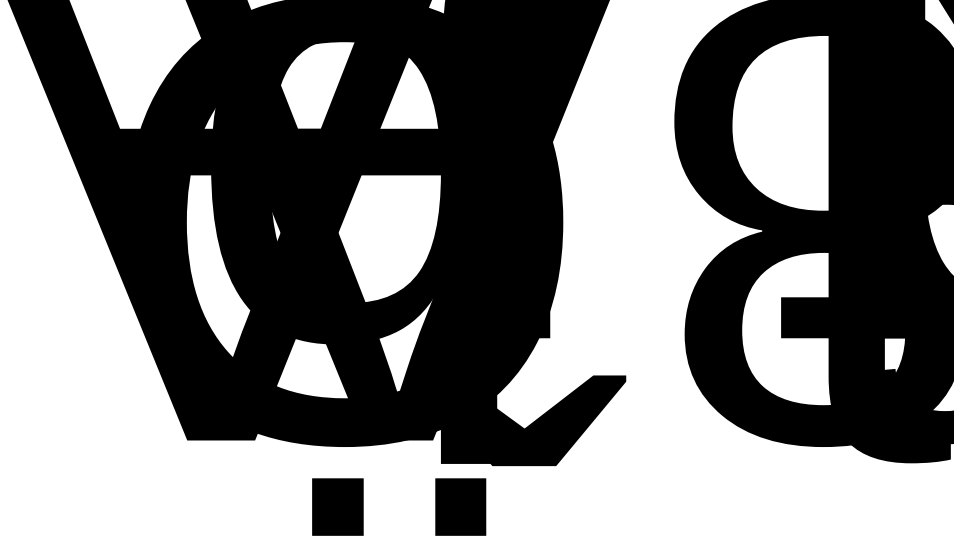
1

1

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15

16



6.4.4

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6.4.5

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ℵ × f

6.4.6

1

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2

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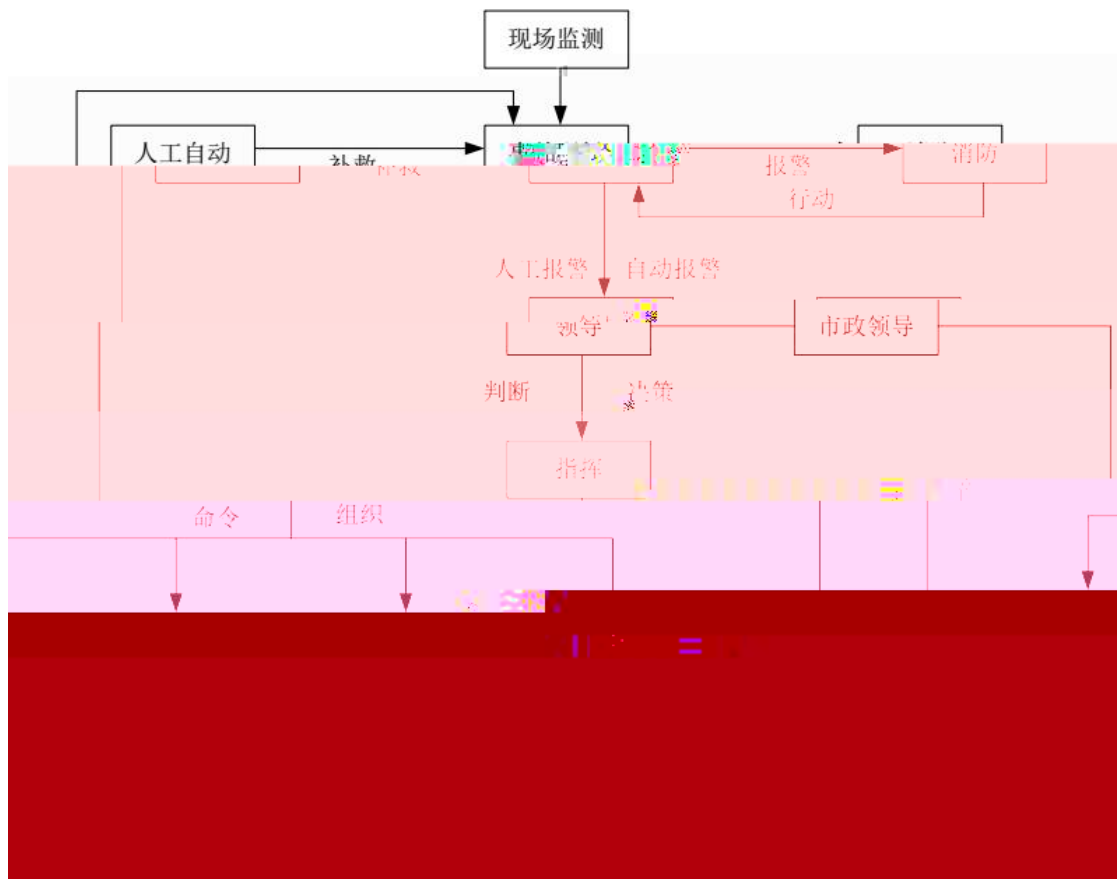
ס ב

[2018]8

6.4.1

6.4.1

1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		



6.4-2

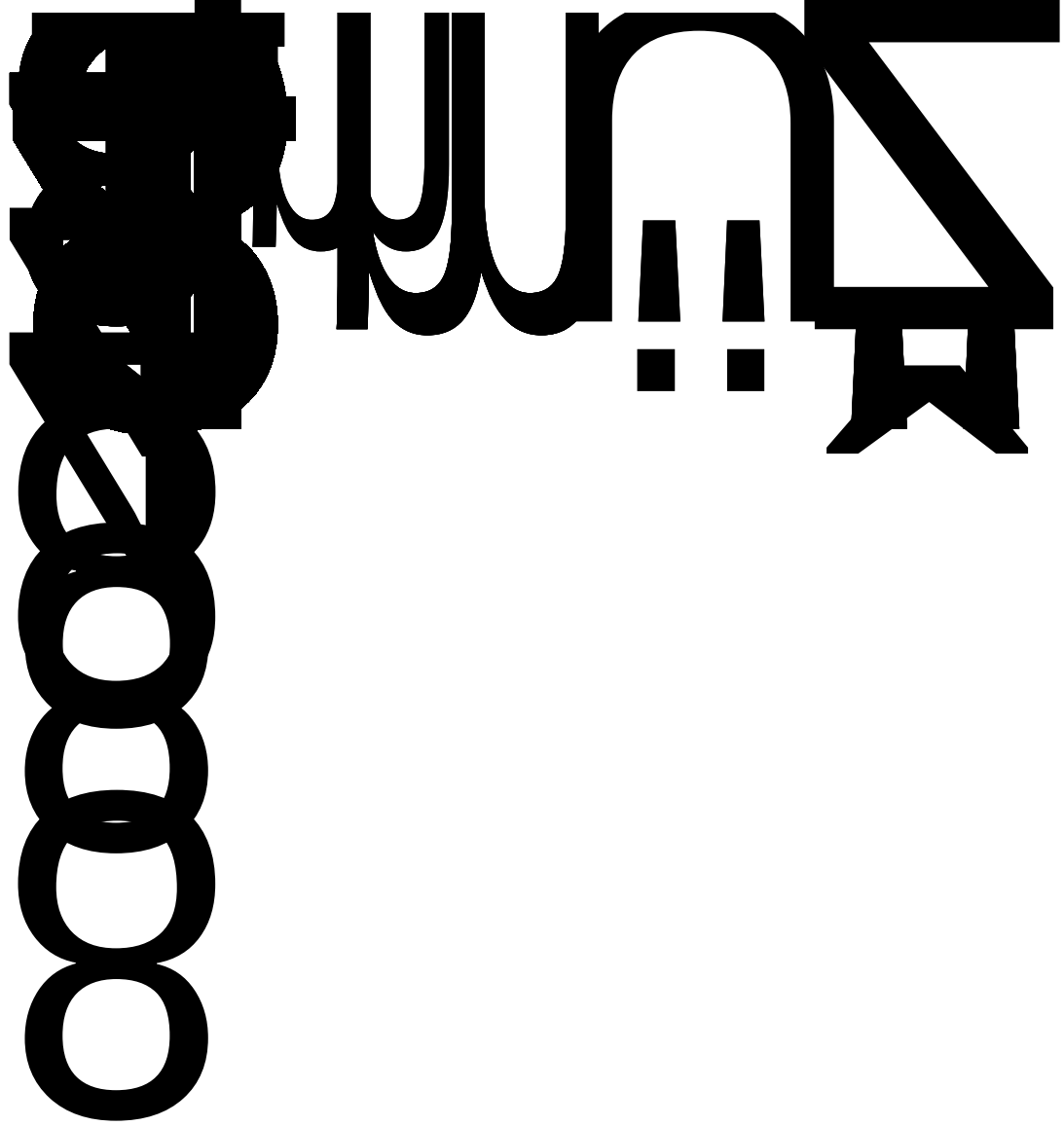
2

1

2

3

r



6.5.2

		100.06		
/t	500m	<u>0</u>	5km	<u>11259</u>
		200m		
		F1	F2	F3
		S1	S2	S3
		G1	G2	G3
		D1	D2	D3
Q	Q 1	1≤Q 10	10≤Q 100	Q 100
M	M1	M2	M3	M4
P	P1	P2	P3	P4
		E1	E2	E3
		E1	E2	E3
		E1	E2	E3
IV ⁺	IV	III	II	I
		Γ	(,	

7

7.1

7.1.1

HJ/T 393-2007

4

7.1.1.1

7.1.1.2

1

2

2

3

4

a)

b)

c)

d)

5

a)

b)

c)

d)

6

10

7

15

8

- a) b) c) d) e)

9

10

- a) b) c) d) e) f)

11

2000 /100

12

13

14

15

20

7.1.2

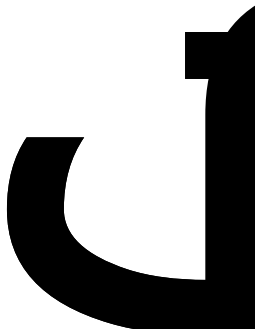
27 “

”



ء

27



			“	+	+	+
+	RCO	+	”			
[a]		+	+	+	+	RCO
+						

7.2.1

	1				>90%			7#
	2				>90%		+	8#
	3				>90%			1 2 3#
					>95%	SO ₂ NO _x [a]	+ + RCO +	
	4				>90%		+	
					>95%	SO ₂ NO _x [a]	+ + RCO +	5#
	5				>90%		+	
					>95%	SO ₂ NO _x [a]	+ + RCO +	
	6				>90%			4 6#
	7				>90%		+	9#
	1			/	/		+	/
	2			/	/	SO ₂		
				/	/			
				/	/			/
				/	/	[a]		
				/	/	NMHC		

7.2-1

7.2-2

7.2-3

7.2.2

7.2.2.1

15m 1 2 3 4 6 7 8# 25m

9#

K. .F.A.

99%

0.2μm 0.2μm

99%

38.7~57.7mg/m³ 0.0673~0.681 kg/h

GB16297-1996

+ 99.99% 99.99%~99.994%

7.2.2.2

[a] SO₂ “ +

+ + + RCO + ”

30m

7.2-2

1

<70

380 100

500

100

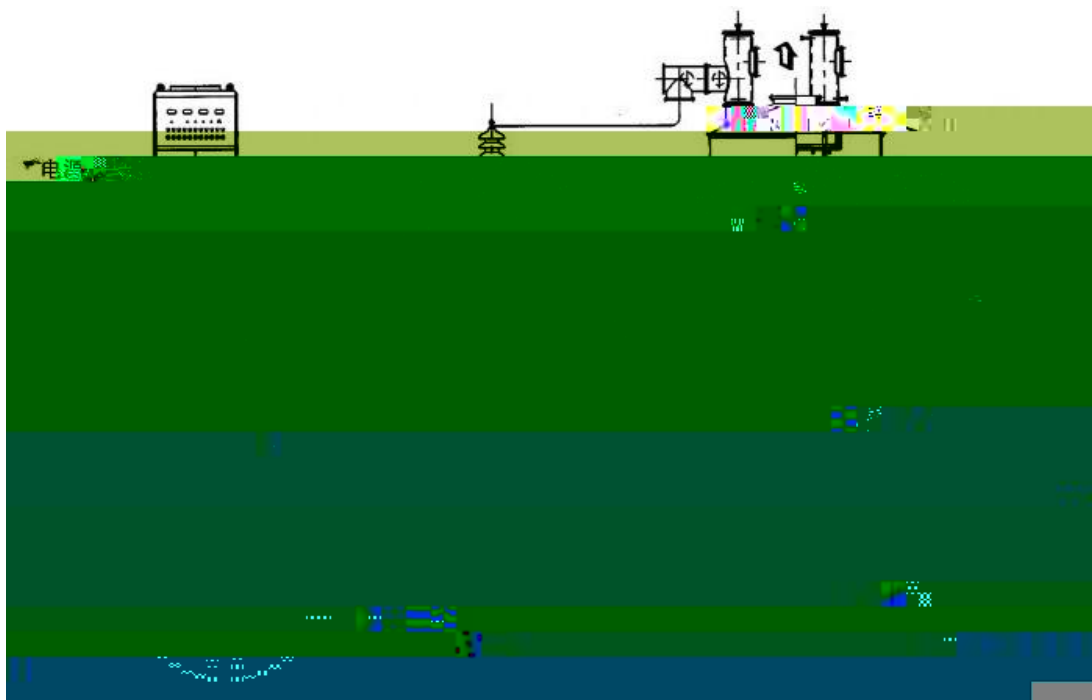
40%

40%

30%

80~90%

>8 μ m



7.2-4

10

7%~10%

100

F9

2~4

G4-F7-F9

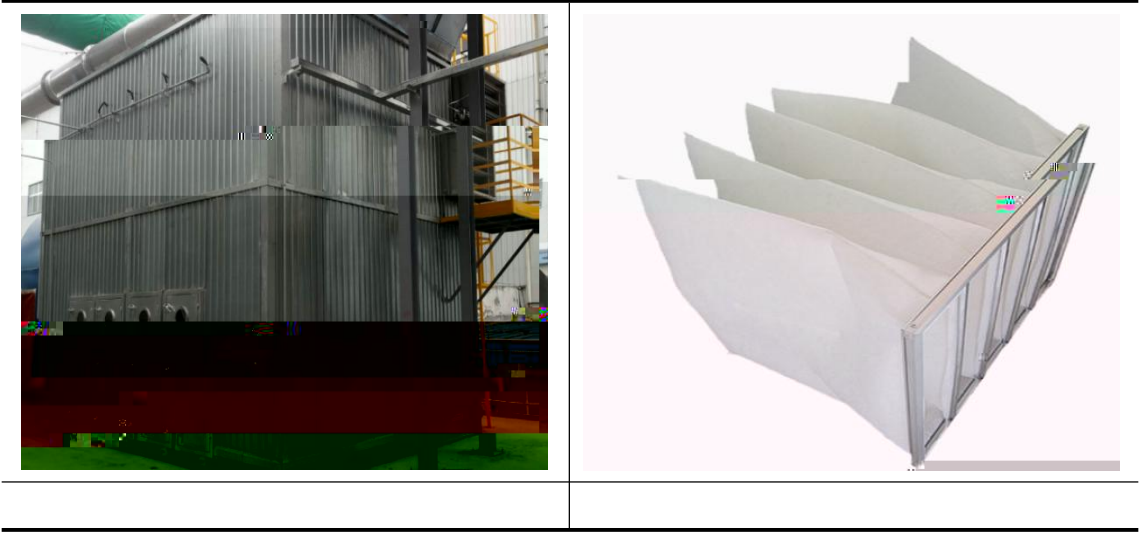
PLC

PLC

7.2.2

	3000CMH/	3000CMH/	3000CMH/	3000CMH/
	G4	F7	F9	F9

	≤ 40	≤ 40	≤ 40	≤ 40
	80-450Pa	80-450Pa	160-450Pa	160-450Pa
	592*592*46	592*592*500	592*592*500	592*592*500



7.2-5

RCO

VOCs

VOCs

200

5~20

RCO

RCO

RCO

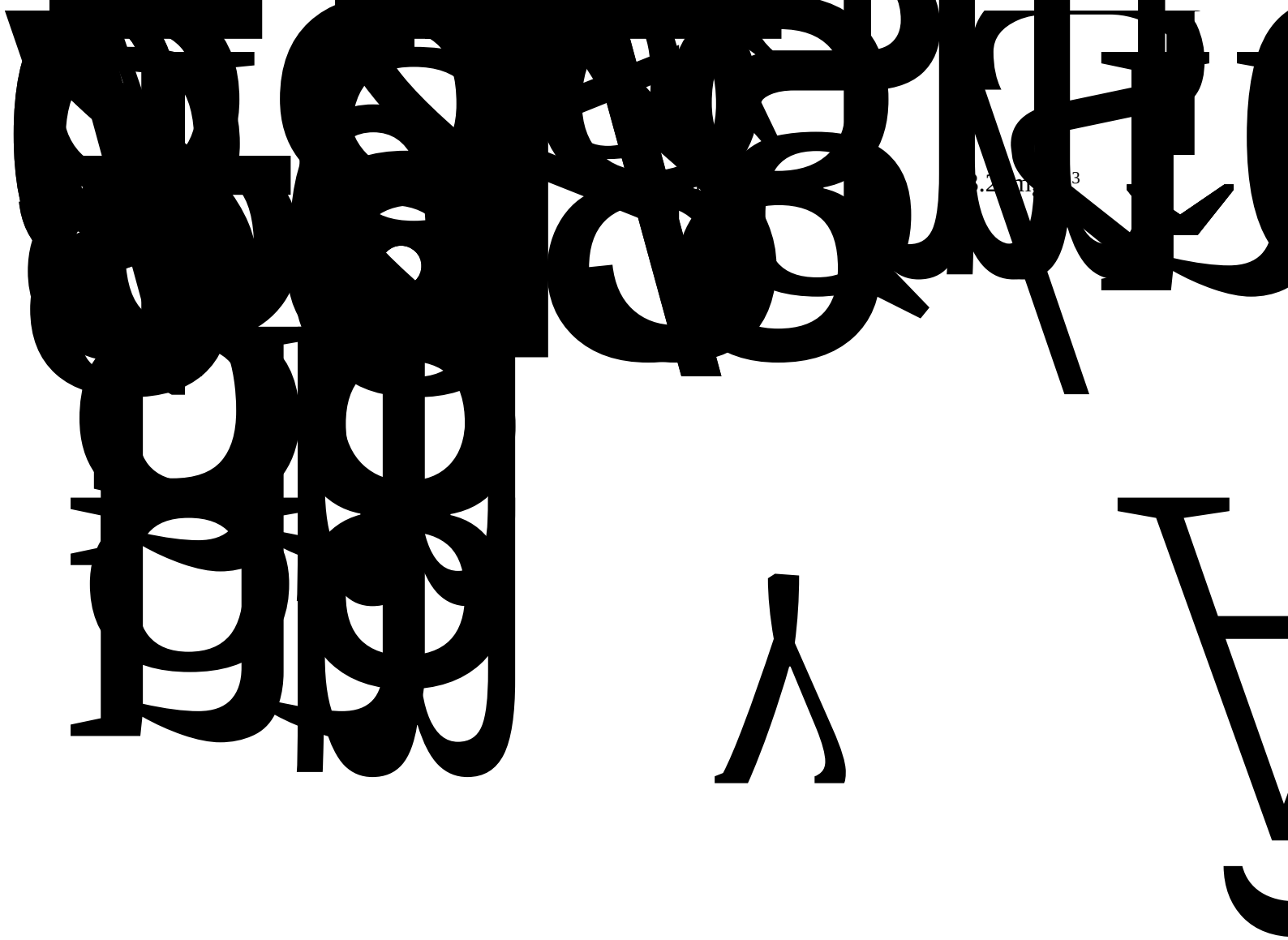
50

VOCs

RCO



7.2-8



[a]

	18	6	-12		-0.3072
[a]	1.2×10^{-4}	2×10^{-6}	-1.18×10^{-4}		-3.0208×10^{-6}
	6.3	4.73	-1.57		-0.040192

8000h/a

7.2.2.3

2 1 1

,

2

8

[a] SO₂

(GB16297-1996)

7.2.3

9

7.2.6

7.2.6

7.3.1

1		COD Ⅲ BOD _{5Ⅲ} Ⅲ SS Ⅲ			FS001	+	/	DW001		

7.3.1

| | | |

HJ1119-2020 A

960m³/d 36.25m³/d

10875m³/a < 960m³/d , “ ”

2592m³/a COD BOD₅ SS
0 ! 0 κ

5'

H

Λ Λ $\omega_{\perp}$ $\omega_{\perp}$, $\omega_{\perp}$ $\omega_{\perp}$.H

1

2

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4

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6

GB12348-2008 4a

GB12348-2008 3

7.4

“ ”

“ 5.2.4

”

7.5

2018 11

7.5.1

2017 78

7.5.2

В

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7.5.3

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3-8"Đ ã ã" ãnd` P . 5

1590

52636.09

3

5			5
6			10
ή			50

7.6.2

			()	
10	1	+	0	
	4		+	500 /
2	1		300	/
			150	/
3		3		
	1	100m ²	2	
4		690m ²	50	/
5			200	/
6		1200m ³		

8

8.1

8.1.1

8.1.2

1

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72

8.2.3

8.3

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9

9.1.2

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“ ”

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9.1.3

9.1.3.1

9.1.3.2

9.1.3.3

9.1.4

1

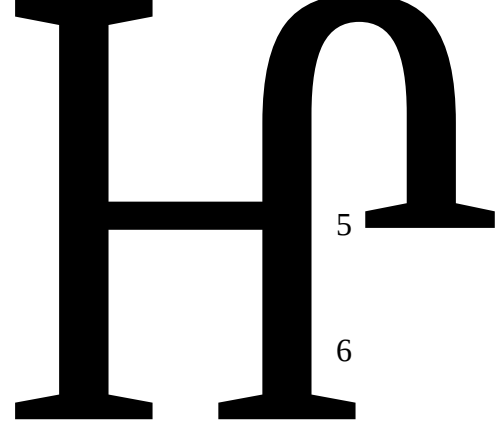
“ ”

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“ ”

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“ ”



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9.1.5.2

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9.1.5.4

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9.1.5.5

9.1.1

9.1.1

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9.1.8

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9.3

1

[2014]24

[2016]54

2017 1 1

2017 9 13

“ ”

[2017] 121

VOCs

VOCs

2

B

COD $=2592\text{t/a} \times 60\text{mg/L} \times 10^{-6} = 0.156\text{t/a}$

NH₃-N $=2592\text{t/a} \times 8\text{mg/L} \times 10^{-6} = 0.021\text{t/a}$

9.3.1

9.3.1

9.4

9.4.1

9.4.1.1

- 1 [1999]
- 24
- 2 [1999] 24
- 3 “ ”
- [1999] 3
- 4 “ ”
- [1999] 8
- 5 “ ”
- [1999] 9

9.4.1.2

- 1
- 2
- 3
- 4

9.4.1

3

2

4

10

10.1

10.1.1

2

65981m² 29476.41m²

3 15m

1 15m

“ + +

+ + +24m ”

24956.14 6000 24.04%

2022 4

6 93332m²

140

52636.09 1640 3.12%

15m 6# 8 “ ”

1 “ ”

“

+ + + + RCO +

+30m 5# ”

4 4000m³/h

10.1.2

2

1

36.00t/d

36.00t/d 10800t/a

2

3

221.55t/a

✚

6551

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

	[a]	VOCs	
2022	5	20	-26
			Ø □

1.

n Ä

Ä2

[a] SO_2

2

960m³/d

36.25m³/d 10875m³/a < 960m³/d

36.00m³/d

GB8978-1996

725m³/

SS

10.2.3.4

+

500m³/d

145m³/d

36.00m³/d

3.2

2022年10月

È

GB/T 14848-2017

10.2.3.3

1

8-2

“ ”

10.2.3.4

1

2

1.0mm

1.5mm

1% 2%

10.2.5

10.2.5.1

200m

10.2.5.2

2022 5 20

GB3096-2008 3

GB3096-2008 4a

10.2.5.3

1

620m

2

75 90dB

62.3dB A <65 dB A

53.2dB A <55dB A

63.4dB A <70 dB A

53.9dB A <55dB A 200m

620m

10.2.5.4

1

2

10.2.6

✓

✓

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γ ω $\emptyset \quad \emptyset$

$$W_{11}$$

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$$E-\pi^+b\bar{b}D\bar{D}^*$$

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WOW! Xd !j !X xujx bw ..

8 0 A<X1 00 J\ , ΓV H T2 >0 ? E! V 0 L #0 @

100%

10.3

10.3.1

2019

2010

[2010] 122

10.3.2

$\kappa q \sim$

10.3.4

10.4.1

10.5

6

5

$\frac{2}{3}$