	19				
	15240552558		—		226009
	19				
				[2020]134 2020-320671-38-03-640799	
				[C3831]	
	7300m^2				
	450		60		13.3%
			2020 11		
( ) ( ) 1-1 1-3					
/	10686	/	26.5		
/	550	/	/		
/	/	/	/		
“ ” GB18918-2002 1 A					

1-1

			45000t		1000t		/
			250t		20t		/
			100t		12t		/
			1.5t/ 2-3 a		200kg		/
			12000t		250t		/
	/		26.5t		2.2t		
	/		48750km		1000km		

1-2

1-2

	30-50% 10-30% 160 =1 0.88	CO/CO_2
	70%-90% 5%-20% 0.1%-20% 220	CO/CO_2

1-3

1		KD700-2000/260		1		≤220℃		
2		KD700-2000/260		1		≤220℃		
3		18T		1		≤500℃		
4		GJ08 1+6		1				
5		LFD-560/11		1				
6		LHD-450/13		5				

7		JLK-630/6 12 18 24		1				
8		JLK-630/6 12 18 24 30		1				
9		JLK-630/6 12 18 24 32		1				
10		10		4				
11		3		2				
12		7		2				
13		20		1				
13		MM55ROTARYG		2				
14		$2m^3$		2		≤1.05Mpa ≤110℃		
15		/		2		≤1.5Mpa ≤120℃		
16		107t/h		1	/			
17		UN		3	/			

( )

1

2004 9

1939

10

100

1600mm 25t 3800m

40

“ ”

“67

”

2

450

4.875

100m^2

1-4

		2.125	2.125	0	
		0	4.875	4.875	254 24=6096
		2.125	7.000	4.875	

82 254 71

3

1

2

“ ”

GB18918-2002

1 A

3

3000KVA 1

380

220 550 kwh

4

2 9.1m

/min 2 2 2m^3 0.85Mpa

5

1 107t/h

150m^3

1-5

		7500m^2	15000m^2	
		200m^2	/	
		200m^2	3519.6m^2	/
		2000KVA 1	3000KVA 1	
		1 100t/h	/	1 107t/h
		2 2 2 1.1m 75KW 0.85MPa	/	2 9.1m^3/min×0.85MPa
		/	/	/

		100m^2	/	
		100m^2	150m^2	/

4

300

1 2

1-6 3

4

1-6

1		1	7300	7300				
2		1	200	200				

5

2019

2012 [2013]9

2012

[2013]183

[2015]118 “ ”

2012 2012

2013

2013 [2013]232

6

7 “ ”

1

[2020]1

[2018]74

[2013]72 1-7

2 ı Ꮯ

		1500 500 2000 1000 100					
		—	500m	-	11.14	11.14	NW 3000
		500m 500m 500m 100m 1500 500 2000 1000 100	-	4.1	-	4.1	W 1200
		-		-	6.63	6.63	S 1600

		100 70 20 100 200 200	-	1.16	-	1.16	SE 2000

2

2019 SO_2 NO_2 PM_{10}

$PM_{2.5}$ GB3095-2012

2018~2020

$PM_{2.5}$ Ⅱ~

4

[2016]97

1-8

1	VOCs	
2	-	
3		

2017

1-4

1-9

1		
2	1 2 2017	GB189618-2002 A
3		

9

1

2016 2016

2.125

2016002 2017

[2017]021

1-10

1-10

1	2.125	2.125	2016002 2016 1 18	[2017]021 2017 2 27	

2

1

“ ”

2017 007 2019 2020

1-11

1-11 mg/L pH

pH	7.08-7.34	8.12	7.84	6-9	
COD	38~46	54	12	500	
SS	5~6	4	5	400	
	2.18~2.72	14.5	0.118	45	
	0.52~0.78	0.78	0.14	8	
	0.07~0.09	0.26	0.20	20	

pH COD SS

GB8978-1996 4

GB/T31962-2015 B

2

3

1-12

1			HW08	900-249-08	78.47		
2		/ /	HW49	900-041-49	160		
3					10		
4					1		
5			—	—	8.723		

4

2017 007 2019 2020

1-13 dB(A)

	56.4-56.9	48.1-51.3	65	55	
	53.0-54.0	48.1-48.8	65	55	
	57.0-58.1	48.2-52.2	70	55	
	56.2-57.2	48.4-53.4	70	55	

GB 12348-2008 4 3

1-14

1-14 t/a

		886
	COD	0.399
	SS	0.310
	NH_3-N	0.031
		0.005

		0.018
	/	/

-

200m^2 100m^2

GB18597-2001 —

GB15562.2-1995

[2019]327

5

2010

156973m^2 68590.6m^2 79441.3m^2

31120 2010 8

[2010]061 2014 4

[2014]017 2015

4 2015023

2016

1

——

2020 0011 1-15

1-15

	pH	COD	SS	NH_3-N	TP	
mg/L	7.53-7.89	308-336	8-14	11.4-11.7	1.84-1.93	0.10
mg/L	6-9	500	400	45	8	100

pH COD

SS GB8978-1996 4

GB/T31962-2015 B

2

——

2019 0394 1-16

1-17

1-16

			mg/m^3	Kg/h	mg/m^3	Kg/h
PQ1 15		ND	7.55×10^{-4}	120	3.5	
PQ2 20		ND	2.65×10^{-3}	120	5.9	
		1.66-1.92	4.71×10^{-3}	120	17	

1-17

	mg/m^3	mg/m^3	mg/m^3	
	0.88-1.87	1.87	4.0	
	0.01-0.04	0.04	1.0	

GB16297-1996 2

GB16297-1996 2

3

GB12348-2008 3 4

1-18 dB(A)

1	56.3	44.2	70	55	
1	55.5	44.8	70	55	
1	55.1	43.6	70	55	
1	56.2	44.1	70	55	
1	55.8	43.5	65	55	
1	57.6	46.3	65	55	
1	56.9	45.6	65	55	
1	56.9	47.5	65	55	

4

1-19

1-19

		HW49 900-041-49	

1

120°12′

121°55′ 31°41′ 32°43′

2

4.5 5 3.2

3

“

” “ ”

1951 2002

15.3℃ 1089.7mm 287.1mm 3.0m/s

26.3m/s(N) 2002 D

46%

4

22

9793 m^3 3.1 m^3/s

1.03m/s 0.88m/s 4

8

5

14 4 1

8544km^2 1

6 2

2018 731 2017 0.5

8.1‰ 8.98‰ -0.88‰

0-14 80.05 10.95% 15-64

497.23 68.02% 65 153.72 21.03%

2018 8427 7.2% 3

606.2 2.6% 10086.5 20.3%

8.8% 3088.8 9%

2542.9 7.7% 46321 22369

8.3% 9.3 2.3 1.78

6.8%

2018 9.3% 2

8.3% 9.3% 6 1

2.07:1 0.02

87.2% 52.1

16.6% 10.3

1.78% 0.04 10.4 1.8

1

146.98

2

1984 12 14

“IS014000” “ ”

“5+3” 2012

“5+3+1” “5”

5 “3”

“1”

5.96km^2 2.12km^2

9.2km^2

429.57hm^2

LED

245.12hm^2

553.35hm^2

IT

182.09hm^2

188.47hm^2

B

379.19hm^2

207.63hm^2

50.68km^2

3

GB3838-2002

100%

2019

PM_{10}

$PM_{2.5}$ CO 2019

3-1

3-1

		/ μg/m^3	/ μg/m^3	/%	
SO_2		10	60	16.7	
NO_2		32	40	80.0	
PM_{10}		55	70	78.6	
$PM_{2.5}$		37	35	106	
CO		1.1	10	11.0	
	8 90	157	160	98.1	

$PM_{2.5}$

2018~2020

$PM_{2.5}$

“ ”

2020

VOCs

20% VOCs 30% NOx

O_3

“ ”

2020 VOCs 2015

20% PM2.5 46 /

72% 2015 25%

( )

2019 Ⅱ~

2019

3

GB/T 15190-2014 3

20m 5m 4a

WXEPD200810113013CS 8 19

3-1 dB A

1		59.5	50.7	65	55
2		64.4	52.0	70	55
3		60.6	54.3	70	55
4		61.0	49.8	65	55

GB3096-2008 3

4a

3-2

	0	1500	1000			N	1600
	0	1200	3000			N	1200

1000

SO_2 $PM_{2.5}$ PM_{10} NO_2 CO O_3

TSP GB3095-2012

SO_2	24 1	60 150 500	μg/m^3
$PM_{2.5}$	24	35 75	
PM_{10}	24	70 150	
NO_2	24 1	40 80 200	
CO	24 1	4000 10000	
O_3	8 1	160 200	
TSP	24	200 300	
	1	2000	

GB3838-2002 II

GB3838–2002 III III

		II	
1	pH	6 9	6 9
2	COD	≤15	≤20
3	BOD_5	≤3	≤4
4	TP	≤0.1	≤0.2
5	NH_3-		

2019

3

GB/T 15190-2014

3 20m 5m 4a

GB3096-2008 3

20m 5m

4a

3	65	55	
4a	70	55	20m 5m

GB8978-1996 4

GB18918-2002 1 A

4-4

PH	6 9	6 9
COD	500mg/L	50mg/L
BOD_5	300 mg/L	10 mg/L
SS	400mg/L	10mg/L
NH_3-N*	45mg/L	5 8 mg/L
TP*	8 mg/L	0.5mg/L
	20mg/L	1mg/L

* NH_3-N TP GB/T 31962-2015

B 12 ≤12

GB16297-1996 4.0mg/m^3

VOCs

GB37822-2019 A

4-5 VOCs

NMHC	6	1h	
	20		

GB12348-2008 3

20

4-5

4-5

3	65	55	

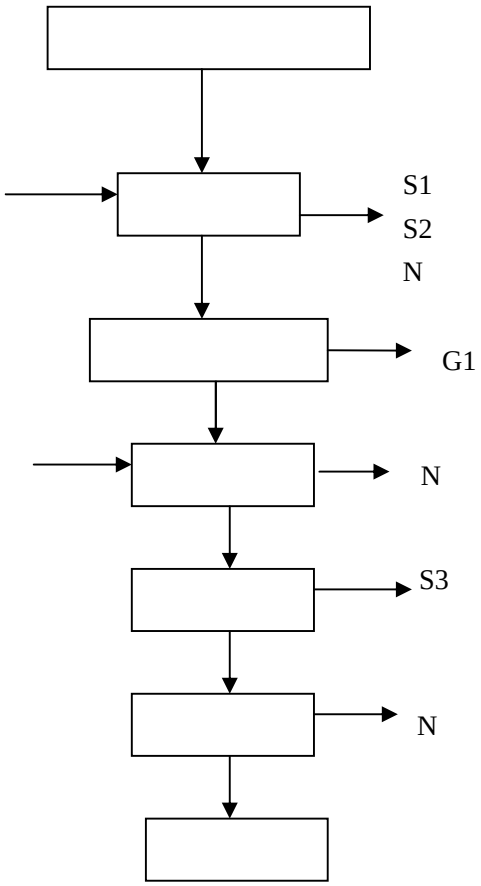
		886	766	0	766	/	766	1652
	COD	0.399	0.345	0	0.345	/	0.345	0.744
	SS	0.310	0.268	0	0.268	/	0.268	0.578
	NH_3-N	0.031	0.027	0	0.027	/	0.027	0.058
		0.005	0.004	0	0.004	/	0.004	0.009
		0.018	0.015	0	0.015	/	0.015	0.033
	/	/	/	/	/	/	/	/
		/	2.0	2.0	0	0	0	/
		/	115	115	0	0	0	/

1

2

3 “ ”

1



5-1

1

1 $10m^3$

50

S1 S2

2

150 ~220

450 ~500

220

G1

3

220

S3

2

5-1

		S1		
		S2		
		S3		

3

1

71 254

GB50015-2019 30L-50L/

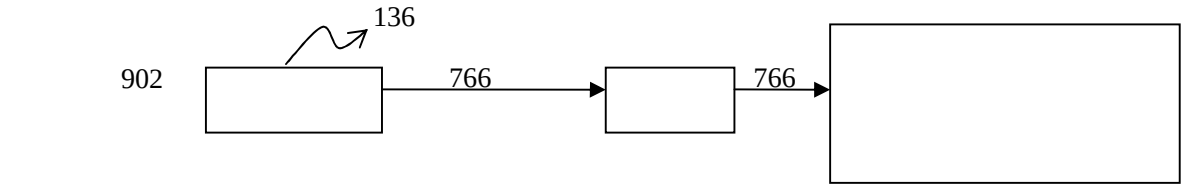
· 50L/ · 902 m^3/a

0.85 766m^3/a

2 1 107m^3/h

652272m^3/a 1.5% 9784m^3/a

3000m^3/a



10686 6096

9144

609600

5-2 m^3/a

1

150 ~220

G1

· 50L/ · 902 m^3/a

0.85 766m^3/a COD SS

5-1

5-2

	766	COD	450	0.345		450	0.345	500	
		SS	350	0.268		350	0.268	400	
			35	0.027		35	0.027	45	
			5	0.004		5	0.004	8	
			20	0.015		20	0.015	20	

3

5-3

1		1	85		E 60		20-25
		5	95		E 60		
2		3	85		E 60		
3		1	85		E 60		
4		2	90		E 60		
5		1	90	—	N 90		

4

1

S1 S2

S3 S4 S5

71 0.2kg/ ·d

3.6t/a

5-4

5-4

S1	1.5	√

5

5-7

5-7 t/a

		766	0	766	766
	COD	0.345	0	0.345	0.038
	SS	0.268	0	0.268	0.008
		0.027	0	0.027	0.004
		0.004	0	0.004	0.0004
		0.015	0	0.015	0.0008
		2.0	2.0		0
		100	100		0
		1200	1200		0

			mg/m^3	t/a	mg/m^3	kg/h	t/a	
			—	0.003	—	0.0005	0.003	
			mg/L	t/a	mg/L		t/a	
			450	0.345	450		0.345	
		COD	350	0.268	350		0.268	
		SS	35	0.027	35		0.027	
			5	0.004	5		0.004	
			20	0.015	20		0.015	
			450	0.345	450		0.345	
		t/a		t/a	t/a		t/a	
		1.5		0	1.5		0	
		100		100	0		0	
		0.5		0	0.5		0	
		1200		1200	0		0	
		3.6		3.6	0		0	
			dB A			m		
		1		85		E 60		
		5		95		E 60		
		3		85		E 60		
		1		85		E 60		
		2		90		E 60		

3.0t/d

— HJ2.3-2018

B

B 1

2

7.2.1-1

		Q ***W***
		Q≥20000 *W*≥600000
A		*Q* 200 *W* 6000
B		—

7.2.1-2

1	120°56"5.58'	31°53"52.08'	0.0766			—		pH COD SS 	6 9 50 10 5 8 0.5 1

7.2.1-4

1	1#	COD	GB8978-1996	500
		SS		400
			4	20
		NH_3-N		45
		TP	GB/T31962-2015 1 A	8

7.2.1-5

1	1#	COD	450	1.358	0.345
		SS	350	1.055	0.268
			35	0.106	0.027
			5	0.016	0.004
			20	0.059	0.015
		COD			0.345
		SS			0.268
					0.027
					0.004
					0.015

2 7.56

12.8 /

60% 40%

GB18918-2002 1 A

2019 11 13 ~19 pH 6.60~7.40 COD 20~35mg/L SS 3~6mg/L NH_3-N 0.140~1.98mg/L TN 8.02~13.0mg/L TP 0.102~0.214mg/L

GB18918-2002 1 A

A.

B.

12

3.0t/d

C.

1

7.2.2-1

	0	0	3	179	40	0	8	6069		0.0005

2

7.2.2-2

7.2.2-2

/	/	
		26
/		38.5
/		-10.2

	/m	≈90
	/km	--
	/°	/

3

7.2.2-3

	1h	2000	

4

7.2.2-4

10	0.2134	0.0107
50	0.2538	0.0127
75	0.2719	0.0136
100	0.2719	0.0136
150	0.1576	0.0079
200	0.1026	0.0051
250	0.0742	0.0037
300	0.0573	0.0029
350	0.0461	0.0023
400	0.0382	0.0019
450	0.0325	0.0016
500	0.0281	0.0014
600	0.0218	0.0011
700	0.0177	0.0009
800	0.0147	0.0007
900	0.0125	0.0006
1000	0.0108	0.0005
1100	0.0095	0.0005
1200	0.0084	0.0004
1300	0.0076	0.0004
1400	0.0068	0.0003
1500	0.0062	0.0003

1600	0.0057	0.0003
1700	0.0052	0.0003
1800	0.0049	0.0002
1900	0.0045	0.0002
2000	0.0042	0.0002
2100	0.0039	0.0002
2200	0.0037	0.0002
2300	0.0035	0.0002
2400	0.0033	0.0002
2500	0.0031	0.0002
	0.2815	0.0141
/m	90	
D10% /m	—	

5

7.2.2-5

		0.2815	2000	0.0141	—

0.0141%

HJ2.2-2018

6

1

7.2.2-6

			/ mg/m^3	/ kg/h	/ t/a
			——		

2

7-7

/

t/a ġ Œ

		0.003

3

7.2.2-8

		/ t/a
1		0.003

7

L

(GB13201 91)

$$\frac{Q_c}{C_m} = \frac{1}{A}(BL^C + 0.25r^2)^{0.50} L^D$$

Cm—— mg/m^3

Qc—— kg/h

L—— m

A B C D——

r—— m

S

r=(S/π)$^{1/2}$

7.2.2-9

7.2.2-9

		kg/h	m	(m^2)	m	m
		0.0005	8	7300	0.01	50

50m

3

①

$$Lr = L_0 - 20\log(\frac{r}{r_0}) - \Delta L$$

Lr — r A dB A

L_0 — r_0 A dB A

r — m

r_0 — 1

L— dB A

②

$$L = 10\lg \sum_{i=1}^{n} 10^{0.1L_i}$$

L_i — i

n—

20-25dB A

7.2.3-1

7.2.3-1 dB(A)

	32.7	59.5	50.7	59.5	50.8	0.0	0.1
	18.5	64.4	52.0	64.4	52.0	0.0	0.0
	15.9	60.6	54.3	60.6	54.3	0.0	0.0
	28.5	61.0	49.8	61.0	49.8	0.0	0.0

GB12348-2008 3 4

200m^2

100m^2 GB18597-2001

— GB15562.2-1995

[2019]327

GB 15562.2-1995

7.2.4-1

1			HW08	900-249-08		100m^2		20t	2-3
2			HW49	900-041-49				5t	2-3

HW08

HW08

HW49

HJ 2025-2012

1

/ HJ

169-2018 B B.1 B.2

7.2.5-1 7.2.5-2

7.2.5-1

		20	2500
		12	2500
		0.2	2500
		2.2	2500
		20	2500
		10	2500

7.2.5-2

	/			/
	/			/
	/			/
	/			/

2 Q

HJ 169-2018

Q

Q

Q

$Q= q_1/Q_1+ q_2/Q_2+ q_3/Q_3+……+ q_n/Q_n$

q_1 q_2 …q_n t

Q_1 Q_2 …Q_n t

Q 1

Q≥1 Q 1≤Q 10 10≤Q 100 Q≥100

7.2.5-3

7.2.5-3

		20	2500	0.008	
		12	2500	0.0048	0.01376
		0.2	2500	0.00008	

		2.2	2500	0.00088	
		20	2500	0.008	0.008
		10	2500	0.004	0.004
	Q				0.02576

3

Q=0.02576 Q 1

4

HJ169-2018

7.2.5-4

	+			
				a

a

A

5

3-2 3-3 500

6

7.2.5-5

		120°56"5.58'		31°53"52.08'	

- HJ964-2018 A

7300m^2

37314m^2 ≤5hm^2

7.2.6-1

7.2.6-2

7.2.6-1

7.2.6-2

									—
								—	—

“—”

HJ 610-2016 ,

1

“ ”

“ ”

7.2.8-2

1m	A	

7.2.8-3

		1 /	GB37822-2019

			/		/	/
		pH COD			/	
				GB12348-2008 3 4	10	
					/	/
			100m^2		50	
				/	/	
		/		/	/	/
		.			/	
“ ”		/			/	/
	1 2 3			“ ”	/	/

	/	/	/
	50m	/	/
		60	

			/	
		pH COD		
				GB12348-2008 3 4
				“ ”
			$100m^2$	

1

2004 9

2016

450

4.875

100m^2

2020-320671-38-03-640799

2

2019

2012 [2013]9

2012 [2013]183

[2015]118

“ ”

2012 2012

2013 2013

[2013]232

3

[2020]1

[2018]74

[2013]72

4

5

(1) GB3838-2002

(2) SO_2 NO_2 PM_{10}

GB3095-2012 $PM_{2.5}$

(3) GB3096-2008 3

6

1

GB18918-2002 1 A

2

150 ~220

$0.2815\mu g/m^3$

0.0141%

50m

4

GB12348-2008 3 4

7

9-1 t/a

		886	766	0	766	/	766	1652
	COD	0.399	0.345	0	0.345	/	0.345	0.744
	SS	0.310	0.268	0	0.268	/	0.268	0.578
	NH_3-N	0.031	0.027	0	0.027	/	0.027	0.058
		0.005	0.004	0	0.004	/	0.004	0.009
		0.018	0.015	0	0.015	/	0.015	0.033
	/	/	/	/	/	/	/	/
		/	2.0	2.0	0	0	0	/
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